2-10-20 2-12-20 02-15-20 02-17-20

Student: _____ **Instructor:** Alfredo Alvarez **Assignment:** finalm1314COC148sulsavekellyfoil1
Date: _____ **Course:** Math 1314 Sullivan Coreq

1. Simplify.

$|-39|$

$|-39| =$ _____

Answer: 39

$|-39| =$
$(39) =$
$39 =$

Good Good

ID: Quick Check R.2.4

2. Add: $-12+8$

$-12+8 =$ _____ (Type an integer.)

Answer: -4

$-12+8 =$
$-4 =$

ID: Quick Check R.2.6

3. Add.

$-1+1$

$-1+1 =$ _____

Answer: 0

$-1+1 =$
$0 =$

ID: Quick Check R.2.9

4. Perform the indicated operation.

$13-7$

$13-7 =$ _____

Answer: 6

$13-7 =$
$6 =$

ID: Quick Check R.2.17

Sharks eat only in the day.
they always sleep at night

MATH Shark

5. Subtract.

3 − 4

3 − 4 = _____

Answer: − 1

ID: Quick Check R.2.18

3 − 4 =

− 1 =

6. Subtract the following.

The answer is _____.

− 6 − 7

Answer: − 13

ID: Quick Check R.2.19

− 6 − 7 =

− 13 =

7. Perform the indicated operation.

4 • (− 3)

4 • (− 3) = _____

Answer: − 12

ID: Quick Check R.2.26

4 • (−3) =

− 12 =

8. Find the product.

4 • 15

4 • 15 = _____ (Simplify your answer.)

Answer: 60

ID: Quick Check R.2.27

4 • 15 =

60 =

9. Multiply.

$-9(-8)$

$-9(-8) =$ _____

Answer: 72

ID: Quick Check R.2.28

10. Use the Distributive Property to remove the parentheses.

$2(5x+3)$

$2(5x+3) =$ _____

Answer: $10x+6$

ID: Quick Check R.2.40

11. Find the absolute value.

$\left|-\frac{7}{3}\right|$

$\left|-\frac{7}{3}\right| =$ _____

(Type an integer or a simplified fraction.)

Answer: $\frac{7}{3}$

ID: R.2.45

12. Perform the indicated operation.

$6 \cdot (-9)$

$6 \cdot (-9) =$ _____

Answer: -54

ID: R.2.53

13. Perform the indicated operation.

$-|-4\cdot(8)|$

$-|-4\cdot(8)| =$ _____ (Simplify your answer.)

Answer: -32

ID: R.2.71

14. Perform the indicated operation.

$\frac{9}{0}$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $\frac{9}{0} =$ _____ (Simplify your answer.)
- **B.** The answer is undefined.

Answer: B. The answer is undefined.

ID: R.2.73

15. Perform the indicated operation.

$\frac{0}{7}$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $\frac{0}{7} =$ _____ (Simplify your answer.)
- **B.** The answer is undefined.

Answer: A. $\frac{0}{7} =$ **0** (Simplify your answer.)

ID: R.2.75

16. Divide the rational numbers. Express the quotient as a rational number in lowest terms.

$\frac{5}{3} \div \frac{25}{9}$

$\frac{5}{3} \div \frac{25}{9} =$ _____

(Type an integer or a simplified fraction.)

Answer: $\frac{3}{5}$

ID: R.3.27

Prime 2, 3, 5, 7, 11, 13, 17, ...

$\frac{5}{3} \div \frac{25}{9} =$

$\frac{5}{3} \cdot \frac{9}{25} =$ rewrite

$\frac{5}{3} \cdot \frac{3 \cdot 3}{5 \cdot 5} =$

$\frac{5}{3} \cdot \frac{3 \cdot 3}{5 \cdot 5} =$

$\frac{3}{5}$

5 | 5 3 | 3 5 | 2 5 | 5 3 | 9 3 | 3 1 | 1 1 | 5 | 5 1 | 1

$5 = 5$
$3 = 3$
$25 = 5 \cdot 5$
$9 = 3 \cdot 3$

17. Add the rational numbers. Express the sum as a rational number in lowest terms.

$-\frac{5}{8} + \frac{1}{12}$

$-\frac{5}{8} + \frac{1}{12} =$ _____ (Type an integer or a simplified fraction.)

Answer: $-\frac{13}{24}$

ID: R.3.37

$-\frac{5}{8} + \frac{1}{12} =$

$-\frac{5}{8}\left(\frac{3}{3}\right) + \frac{1}{12}\left(\frac{2}{2}\right) =$

$\frac{-15}{24} + \frac{2}{24} =$

$\frac{-15+2}{24} =$

$\frac{-13}{24}$

Prime 2, 3, 5, 7, 11, 13

2 | 8 2 | 12 2 | 4 2 | 6 2 | 2 3 | 3 1 | 1

$8 = 2 \cdot 2 \cdot 2$
$12 = 2 \cdot 2 \cdot 3$
$LCD = 2 \cdot 2 \cdot 2 \cdot 3 = 24$

18. Evaluate the expression.

$(-5)^2$

$(-5)^2 =$ _____ (Simplify your answer.)

Answer: 25

ID: R.4.31

$(-5)^2 =$

$(-5)(-5) =$

$25 =$

PEMDAS

19. Find the value of the expression.

-7^4

$-7^4 =$ _____ (Simplify your answer.)

Answer: -2401

ID: R.4.33

$-7^4 =$

$-(7)(7)(7)(7) =$

$-49(7)(7) =$

$-343(7) =$

$-2401 =$

PEMDAS

20. Evaluate the expression.

$5 + 2 \cdot (6 - 1)$

$5 + 2 \cdot (6 - 1) =$ _____

Answer: 15

ID: R.4.43

$5+2\cdot(6-1)=$
$5+2\cdot(5)=$
$5+10=$
$15=$
PEMDAS

21. Simplify.

$-3[6 - (4 - 5)]$

$-3[6 - (4 - 5)] =$ _____

Answer: -21

ID: R.4.45

$-3[6-(4-5)]=$
$-3[6-(-1)]=$
$-3[6+1]=$
$-3[7]=$
$-21=$
PEMDAS

22. Evaluate the expression.

$\frac{6-(-9)}{3}$

$\frac{6-(-9)}{3} =$ _____ (Type an integer or a simplified fraction.)

Answer: 5

ID: R.4.47

$\frac{6-(-9)}{3}=$
$\frac{6+9}{3}=$
$\frac{15}{3}=$
$5=$
PEMDAS

23. Evaluate the expression.

$3 \cdot [5 + 3 \cdot (5 + 5)]$

$3 \cdot [5 + 3 \cdot (5 + 5)] =$ _____ (Simplify your answer.)

Answer: 105

ID: R.4.53

$3\cdot[5+3\cdot(5+5)]=$
$3\cdot[5+3\cdot(10)]=$
$3\cdot[5+30]=$
$3\cdot[35]=$
$105=$
PEMDAS

24. Evaluate the algebraic expression for the given value.

$x^2 - 5x + 8$, for $x = 7$

When $x = 7$, $x^2 - 5x + 8 =$ _____.
(Simplify your answer.)

Answer: 22

ID: Quick Check R.5.11

$x^2 - 5x + 8 =$ $x = 7$
$(7)^2 - 5(7) + 8 =$
$(7)(7) - 5(7) + 8 =$
$49 - 35 + 8 =$
$14 + 8 =$
$22 =$
PEMDAS

25. Simplify the following expression by combining like terms.

$4x + 2x$

$4x + 2x =$ _____ (Type a simplified expression.)

Answer: 6x

ID: Quick Check R.5.18

$4x + 2x =$
$6x =$

26. Simplify the following expression by combining like terms.

$-6x - 3x + 7 - 3$

$-6x - 3x + 7 - 3 =$ _____

Answer: $-9x + 4$

ID: Quick Check R.5.20

$-6x - 3x + 7 - 3 =$
$-9x + 4 =$

27. Simplify the algebraic expression by combining like terms.

$2x - 8x - 6y + 14y$

$2x - 8x - 6y + 14y =$ _____ (Simplify your answer. Do not factor.)

Answer: $-6x + 8y$

ID: Quick Check R.5.21

$2x - 8x - 6y + 14y =$
$-6x + 8y =$

28. Simplify the following expression by combining like terms.

$11z + 3 - 12z - 9$

$11z + 3 - 12z - 9 =$ _____ (Type a simplified expression.)

Answer: $-z - 6$

$11z + 3 - 12z - 9 =$

$-1z - 6 =$

$-z - 6 =$

ID: Quick Check R.5.22

29. Simplify the following expression by combining like terms.

$4x - 3 - x + 5 - 7x$

$4x - 3 - x + 5 - 7x =$ _____ (Type a simplified expression.)

Answer: $-4x + 2$

$4x - 3 - x + 5 - 7x =$

$4x - 3 - 1x + 5 - 7x =$

$-4x + 2 =$

ID: Quick Check R.5.24

30. Simplify the following expression by combining like terms.

$8(x - 5) + x$

$8(x - 5) + x =$ _____ (Simplify your answer. Do not factor.)

Answer: $9x - 40$

$8(x - 5) + x =$

$8(x - 5) + 1x =$

$8x - 40 + 1x =$

$9x - 40 =$

ID: Quick Check R.5.25

31. Simplify the following expression by combining like terms.

$5(z + 6) - 6z$

$5(z + 6) - 6z =$ _____

Answer: $-z + 30$

$5(z + 6) - 6z =$

$5(1z + 6) - 6z =$

$5z + 30 - 6z =$

$-1z + 30 =$

$-z + 30 =$

ID: Quick Check R.5.26

32. Simplify the following expression by combining like terms.

$8(z+3)-4(3z+1)$

$8(z+3)-4(3z+1)=$ _____ (Simplify your answer. Do not factor.)

Answer: $-4z+20$

ID: Quick Check R.5.27

$8(z+3)-4(3z+1)=$

$8(1z+3)-4(3z+1)=$

$8z+24-12z-4=$

$-4z+20=$ PEMDAS

33. Simplify the following expression by combining like terms.

$-3(3x-6)-(6x+1)$

$-3(3x-6)-(6x+1)=$ _____

Answer: $-15x+17$

ID: Quick Check R.5.28

$-3(3x-6)-(6x+1)=$ PEMDAS

$-3(3x-6)-1(6x+1)=$

$-9x+18-6x-1=$

$-15x+17=$

34. Determine which of the following numbers are in the domain of the variable.

(a) $x = 0$ **(b)** $x = -7$ **(c)** $x = -1$ **(d)** $x = 4$

$$\frac{7}{x+7}$$

(a) Is 0 in the domain of the variable?

- No
- Yes

(b) Is -7 in the domain of the variable?

- Yes
- No

(c) Is -1 in the domain of the variable?

- No
- Yes

(d) Is 4 in the domain of the variable?

- No
- Yes

Answers Yes

No

Yes

Yes

ID: Quick Check R.5.32

35. Evaluate the given algebraic expression for $x = 8$.

$9 + 5x$

The solution is _____. (Type an integer.)

Answer: 49

ID: R.5.47

36. Evaluate the following expression for the value given.

$-2x^2+3x-6;\ x=-5$

The expression $-2x^2+3x-6$ evaluated when $x=-5$ is _____. (Type an integer.)

Answer: -71

ID: R.5.49

$-2x^2+3x-6=$ $x=-5$

$-2(-5)^2+3(-5)-6=$

$-2(-5)(-5)+3(-5)-6=$

$-2(25)+3(-5)-6=$

$-50-15-6=$

$-65-6=$

$-71=$

PEMDAS

37. Evaluate the expression for the given value of the variable.

$|5x-2|$ for $x=-4$

$|5x-2|$ equals _____ when $x=-4$.

Answer: 22

ID: R.5.57

$|5x-2|=$ $x=-4$

$|5(-4)-2|=$

$|-20-2|=$

$|-22|=$

$22=$ PEMDAS

38. Simplify the following expression by combining like terms.

$-6z-4z+3$

$-6z-4z+3=$ _____ (Simplify your answer. Do not factor.)

Answer: $-10z+3$

ID: R.5.65

$-6z-4z+3=$

$-10z+3=$

39. Simplify the following expression by combining like terms.

$9z+4-13z-7$

$9z+4-13z-7=$ _____ (Type a simplified expression.)

Answer: $-4z-3$

ID: R.5.67

$9z+4-13z-7=$

$-4z-3=$

40. Simplify the following expression by combining like terms.

$5x + 2x^2 - 8x + 9x^2$

$5x + 2x^2 - 8x + 9x^2 =$ _____ (Type a simplified expression.)

Answer: $11x^2 - 3x$

ID: R.5.71

$5x + 2x^2 - 8x + 9x^2 =$

$11x^2 - 3x =$

41. Simplify the following expression by combining like terms.

$5(v - 3) + 2(5v - 1)$

$5(v - 3) + 2(5v - 1) =$ _____ (Simplify your answer. Do not factor.)

Answer: $15v - 17$

ID: R.5.83

$5(v-3)+2(5v-1) =$

$5v - 15 + 10v - 2 =$

$15v - 17 =$

PEMDAS

42. Simplify by factoring.

$\sqrt{63}$

$\sqrt{63} =$ _____ (Type an exact answer, using radicals as needed.)

Answer: $3\sqrt{7}$

ID: Quick Check R.6.25

$\sqrt{63} =$

$\sqrt{9 \cdot 7} =$ rewrite

$\sqrt{9}\sqrt{7} =$

$3\sqrt{7} =$

Primes 2, 3, 5, 7, 11, 13...

$63 = 3 \cdot 3 \cdot 7$

$63 = 9 \cdot 7$

3 | 63
3 | 21
7 | 7
1

43. The lengths of the legs of a right triangle are given. Find the hypotenuse.

$a = 16, b = 63$

The hypotenuse is _____.

Answer: 65

ID: Quick Check R.7.2

$a^2 + b^2 = c^2$

$a = 16$

$c = x$

$b = 63$

$(16)^2 + (63)^2 = c^2$

$256 + 3969 = c^2$

$4225 = c^2$

$\sqrt{4225} = \sqrt{c^2}$

$65 = c$

PEMDAS

44. Find the area A and circumference C of a circle of radius 10 inches.

The area is _____ (1) _____
(Simplify your answer. Type an exact answer in terms of π.)

The circumference is _____ (2) _____
(Simplify your answer. Type an exact answer in terms of π.)

(1) ○ $in.^2$ ○ in. (2) ○ in. ○ $in.^2$

Answers 100π

(1) $in.^2$

20π

(2) in.

$A = \pi r^2$
$A = \pi (10)^2$
$A = \pi (100)$
$A = 100\pi$

$C = 2\pi r$
$C = 2\pi (10)$
$C = 20\pi$

PEMDAS

ID: Quick Check R.7.8

45. Find the area A of a triangle with height 3 inches and base 8 inches.

A = _____ (1) _____

(1) ○ square inches ○ inches ○ cubic inches

Answers 12

(1) square inches

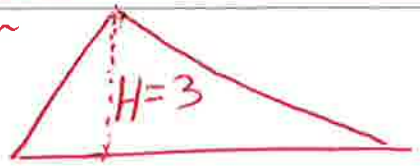
$A = \frac{1}{2}BH$

$A = \frac{1}{2}(8)(3)$

$A = \frac{1}{2}(24)$

$A = \frac{24}{2}$

$A = 12$



PEMDAS

ID: R.7.29

46. Simplify by adding the polynomials.

$(3x^2 - 6x + 3) + (5x^2 + 18x - 11)$

$(3x^2 - 6x + 3) + (5x^2 + 18x - 11) =$ _____
(Simpify your answer. Do not factor.)

Answer: $8x^2 + 12x - 8$

$(3x^2 - 6x + 3) + (5x^2 + 18x - 11) =$
$3x^2 - 6x + 3 + 5x^2 + 18x - 11 =$
$8x^2 + 12x - 8 =$

PEMDAS

ID: Quick Check R.9.18

47. Simplify by adding. Express your answer as a single polynomial in standard form.

$(9-10x+x^2)+(-5+4x-6x^2)$ $(9-10x+x^2)+(-5+4x-6x^2)=$ _____

(Type your answer in standard form.)

$9-10x+1x^2-5+4x-6x^2=$

PEMDAS

Answer: $-5x^2-6x+4$ $-5x^2-6x+4=$

ID: R.9.65

48. Find the product.

$(3xy)(-2x^7y^6)$ $(3x^1y^1)(-2x^7y^6)=$

$-6x^{1+7}y^{1+6}=$ add powers

$(3xy)(-2x^7y^6)=$ _____ (Simplify your answer.)

Answer: $-6x^8y^7$ $-6x^8y^7=$

ID: Quick Check R.10.2

49. Use the distributive property to remove the parentheses.

$-2(x-9)$ $-2(x-9)=$

$-2(x-9)=$ _____ $-2x+18=$

Answer: $-2x+18$

ID: Quick Check R.10.4

50. Multiply and simplify the expressions.

$7x(x^2+2x+2)$ $7x^1(1x^2+2x^1+2)=$

$7x(x^2+2x+2)=$ _____ (Simplify your answer.) $7x^{1+2}+14x^{1+1}+14x=$

Answer: $7x^3+14x^2+14x$ $7x^3+14x^2+14x=$

ID: Quick Check R.10.5

PEMDAS

51. Find the product.

$-2a^4b(4a^2+4ab-b^4)$

$-2a^4b(4a^2+4ab-b^4) =$ _____ (Simplify your answer.)

Answer: $-8a^6b-8a^5b^2+2a^4b^5$

$-2a^4b^1(4a^2+4a^1b^1-1b^4) =$

$-8a^{4+2}b^1-8a^{4+1}b^{1+1}+2a^4b^{1+4} =$

$-8a^6b-8a^5b^2+2a^4b^5 =$

PEMDAS

ID: Quick Check R.10.6

52. Find the product of the two binomials.

$(x+5)(x+7)$

$(x+5)(x+7) =$ _____ (Simplify your answer.)

Answer: $x^2+12x+35$

$(x+5)(x+7) =$

$x^2+7x+5x+35 =$

$x^2+12x+35 =$

ID: Quick Check R.10.9

53. Use the FOIL method to find the product.

$(5x+6)(5x-1)$

$(5x+6)(5x-1) =$ _____ (Simplify your answer.)

Answer: $25x^2+25x-6$

$(5x+6)(5x-1) =$

$25x^2-5x+30x-6 =$

$25x^2+25x-6 =$

ID: Quick Check R.10.10

54. Find the product.

$(7a-b)(a+6b)$

$(7a-b)(a+6b) =$ _____

Answer: $7a^2+41ab-6b^2$

$(7a-b)(a+6b) =$

$7a^2+42ab-ab-6b^2 =$

$7a^2+42ab-1ab-6b^2 =$

$7a^2+41ab-6b^2 =$

ID: Quick Check R.10.11

55. Find the product of the polynomials.

$(a-7)(5a^2+4a-2)$

$(a-7)(5a^2+4a-2) =$ _____

Answer: $5a^3-31a^2-30a+14$

$(a-7)(5a^2+4a-2) =$

$5a^3+4a^2-2a-35a^2-28a+14 =$

$5a^3-31a^2-30a+14 =$

ID: Quick Check R.10.12

56. Multiply vertically.

$(x^2+4x+2)(5x^2+6x+5)$

$(x^2+4x+2)(5x^2+6x+5) =$ _____ (Simplify your answer.)

Answer: $5x^4+26x^3+39x^2+32x+10$

$5x^4+6x^3+5x^2+20x^3+24x^2+20x+10x^2+12x+10 =$

$5x^4+26x^3+39x^2+32x+10$

ID: Quick Check R.10.13

57. Find the product using the difference of two squares formula.

$(7x+2)(7x-2)$

$(7x+2)(7x-2) =$ _____

Answer: $49x^2-4$

$(7x+2)(7x-2) =$

$49x^2-14x+14x-4 =$

$49x^2-4 =$

ID: Quick Check R.10.16

58. Multiply using the rule for the square of a binomial.

$(x-10)^2$

$(x-10)^2 =$ _____

Answer: $x^2-20x+100$

$(x-10)^2 =$

$(x-10)(x-10) =$

$x^2-10x-10x+100 =$

$x^2-20x+100 =$

ID: Quick Check R.10.21

59. Find the product.

$(2x+2)^2$

$(2x+2)^2 =$ _____

Answer: $4x^2+8x+4$

ID: Quick Check R.10.22

$(2x+2)^2 =$

$(2x+2)(2x+2) =$ rewrite

$4x^2+4x+4x+4 =$

$4x^2+8x+4 =$

60. Find the product.

$(5x^2y)(-5x^5y^3)$

$(5x^2y)(-5x^5y^3) =$ _____ (Simplify your answer.)

Answer: $-25x^7y^4$

ID: R.10.23

$(5x^2y^1)(-5x^5y^3) =$

$-25x^{2+5}y^{1+3} =$ add powers

$-25x^7y^4 =$

61. Multiply and simplify the expressions.

$5x(x^2+7x+4)$

$5x(x^2+7x+4) =$ _____ (Simplify your answer.)

Answer: $5x^3+35x^2+20x$

ID: R.10.27

$5x^1(1x^2+7x^1+4) =$ add powers

$5x^{1+2}+35x^{1+1}+20x^1 =$

$5x^3+35x^2+20x =$

62. Find the product of the two binomials.

$(x+9)(x+6)$

$(x+9)(x+6) =$ _____ (Simplify your answer.)

Answer: $x^2+15x+54$

ID: R.10.35

$(x+9)(x+6) =$

$x^2+6x+9x+54 =$

$x^2+15x+54 =$

63. Find the product.

$(x + 10)(x - 8)$

$(x + 10)(x - 8) =$ _____ (Simplify your answer.)

Answer: $x^2 + 2x - 80$

$(x+10)(x-8) =$

$x^2 - 8x + 10x - 80 =$

$x^2 + 2x - 80 =$

ID: R.10.37

64. Use the FOIL method to find the product.

$(3x + 5)(5x - 1)$

$(3x + 5)(5x - 1) =$ _____ (Simplify your answer.)

Answer: $15x^2 + 22x - 5$

$(3x+5)(5x-1) =$

$15x^2 - 3x + 25x - 5 =$

$15x^2 + 22x - 5 =$

ID: R.10.39

65. Find the product of the two binomials.

$(12 - 13x)(11 + 10x)$

$(12 - 13x)(11 + 10x) =$ _____ (Simplify your answer.)

Answer: $-130x^2 - 23x + 132$

$(12-13x)(11+10x) =$

$132 + 120x - 143x - 130x^2 =$

$-130x^2 - 23x + 132 =$

ID: R.10.41

66. Find the product of the two binomials.

$(4a + 5b)(a - 3b)$

$(4a + 5b)(a - 3b) =$ _____ (Simplify your answer.)

Answer: $4a^2 - 7ab - 15b^2$

$(4a+5b)(a-3b) =$

$4a^2 - 12ab + 5ab - 15b^2 =$

$4a^2 - 7ab - 15b^2 =$

ID: R.10.45

67. Find the product of the polynomials.

$(x+4)(x^2+2x+8)$ $x^3+2x^2+8x+4x^2+8x+32=$

$(x+4)(x^2+2x+8)=$ _____ (Simplify your answer.)

Answer: $x^3+6x^2+16x+32$ $x^3+6x^2+16x+32=$

ID: R.10.49

68. Find the product of the polynomials.

$(4a-6)(8a^2+2a-4)$ $=32a^3+8a^2-16a-48a^2-12a+24=$

$(4a-6)(8a^2+2a-4)=$ _____

Answer: $32a^3-40a^2-28a+24$ $32a^3-40a^2-28a+24=$

ID: R.10.51

69. Find the product of the polynomials.

$(2x^2+6x+4)(2x+3)$ $=4x^3+6x^2+12x^2+18x+8x+12=$

$(2x^2+6x+4)(2x+3)=$ _____

Answer: $4x^3+18x^2+26x+12$ $4x^3+18x^2+26x+12=$

ID: R.10.53

70. Multiply vertically.

$(x^2-8x-4)(6x^2+2x+2)$

$(x^2-8x-4)(6x^2+2x+2)=$ _____ (Simplify your answer.)

Answer: $6x^4-46x^3-38x^2-24x-8$

ID: R.10.59

$6x^4+2x^3+2x^2-48x^3-16x^2-16x-24x^2-8x-8=$

$6x^4-46x^3-38x^2-24x-8=$

71. Find the product.

$(b-4)(b-1)(b+3)$

$(b-4)(b-1)(b+3) =$ _____

Answer: $b^3 - 2b^2 - 11b + 12$

ID: R.10.61

$(b-4)(b-1)(b+3) =$
$(b-4)(b^2+3b-1b-3) =$
$(b-4)(b^2+2b-3) =$
$b^3+2b^2-3b-4b^2-8b+12 =$
$b^3-2b^2-11b+12$

72. Find the special product.

$(x-4)(x+4)$

$(x-4)(x+4) =$ _____ (Simplify your answer.)

Answer: $x^2 - 16$

ID: R.10.65

$(x-4)(x+4) =$
$x^2+4x-4x-16 =$
$x^2-16 =$

73. Multiply using the rule for the square of a binomial.

$(x+11)^2$

$(x+11)^2 =$ _____

Answer: $x^2 + 22x + 121$

ID: R.10.67

$(x+11)^2 =$
$(x+11)(x+11) =$
$x^2+11x+11x+121 =$
$x^2+22x+121 =$

74. Find the special product.

$(2y-7)^2$

$(2y-7)^2 =$ _____ (Simplify your answer.)

Answer: $4y^2 - 28y + 49$

ID: R.10.69

$(2y-7)^2 =$
$(2y-7)(2y-7) =$
$4y^2-14y-14y+49 =$
$4y^2-28y+49 =$

75. Multiply.

$(2c + 3g)(2c - 3g)$

$(2c + 3g)(2c - 3g) =$ _____ (Simplify your answer.)

Answer: $4c^2 - 9g^2$

ID: R.10.71

$(2c+3g)(2c-3g) =$
$4c^2 - 6cg + 6cg - 9g^2 =$
$4c^2 - 9g^2 =$

76. Multiply using one of the rules for the square of a binomial.

$(5x + y)^2$

$(5x + y)^2 =$ _____

Answer: $25x^2 + 10xy + y^2$

ID: R.10.73

$(5x+y)^2 =$
$(5x+y)(5x+y) =$
$25x^2 + 5xy + 5xy + y^2 =$
$25x^2 + 10xy + y^2 =$

77. Simplify the expression.

$(a + 6)(a^2 - 6a + 36)$

$(a + 6)(a^2 - 6a + 36) =$ _____

Answer: $a^3 + 216$

ID: R.10.89

$(a+6)(a^2 - 6a + 36) =$
$a^3 - 6a^2 + 36a + 6a^2 - 36a + 216 =$
$a^3 + 216 =$

78. Determine which of the given numbers are solutions to the equation.

$-7x+3=-4; x=-1, x=1, x=4$

Is $x=-1$ a solution to the equation?

- No
- Yes

Is $x=1$ a solution to the equation?

- No
- Yes

Is $x=4$ a solution to the equation?

- No
- Yes

Answers No

Yes

No

$-7x+3=-4$

$-7(-1)+3=-4$

$7+3=-4$

$10 \neq -4$ NO

try $x=-1$

$-7(1)+3=-4$

$-7+3=-4$

$-4=-4$ YES

try $x=1$

$-7(4)+3=-4$

$-28+3=-4$

$-25 \neq -4$ NO

try $x=4$

ID: Quick Check PF.1.3

79. Solve the following equation.

$2x+5=15$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The solution set is { } . (Type an integer or a simplified fraction.)
- **B.** The solution is all real numbers.
- **C.** The solution is the empty set.

Answer: A. The solution set is { 5 } . (Type an integer or a simplified fraction.)

ID: Quick Check PF.1.8

$2x+5=15$

$2x+5-5=15-5$

$2x=10$

$\frac{2x}{2}=\frac{10}{2}$

$x=5$

80. Solve the following equation and verify your solution.

$-4x-5=11$

$-4x-5=11$

$-4x-5+5=11+5$

$-4x=16$

$\frac{-4x}{-4}=\frac{16}{-4}$

$x=-4$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is { } . (Simplify your answer.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

Answer: A. The solution set is { −4 } .(Simplify your answer.)

ID: Quick Check PF.1.9

81. Solve the following equation.

$6y+2=5$

$6y+2=5$

$6y+2-2=5-2$

$6y=3$

$\frac{6y}{6}=\frac{3}{6}$

$y=\frac{3}{6}$

$y=\frac{3(1)}{3(2)}$

$y=\frac{1}{2}$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is { } . (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

Answer: A. The solution set is $\left\{\frac{1}{2}\right\}$. (Type an integer or a simplified fraction.)

ID: Quick Check PF.1.10

82. Solve the following linear equation and verify the solution.

$3x+2+5x+4=2x+36$

$8x+6=2x+36$

$8x+6-6=2x+36-6$

$8x=2x+30$

$8x-2x=2x+30-2x$

$6x=30$

$\frac{6x}{6}=\frac{30}{6}$

$x=5$

$3x+2+5x+4=2x+36$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is { } . (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

Answer: A. The solution set is { 5 } . (Type an integer or a simplified fraction.)

ID: Quick Check PF.1.11

83. Solve the following linear equation.

$6(x-3)=30$

$6(x-3)=30$

$6x-18=30$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$6x-18+18=30+18$

- A. The solution set is { } . (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

$6x=48$

$\frac{6x}{6}=\frac{48}{6}$

Answer: A. The solution set is { 8 } . (Type an integer or a simplified fraction.)

$x=8$ //

ID: Quick Check PF.1.14

84. Solve the following linear equation and verify the solution.

$-2(x-2)-1=5(x+3)+37$

$-2(x-2)-1=5(x+3)+37$

$-2x+4-1=5x+15+37$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$-2x+3=5x+52$

- A. The solution set is { } . (Simplify your answer.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

$-2x+3-3=5x+52-3$

$-2x=5x+49$

$-2x-5x=5x+49-5x$

$-7x=49$

Answer: A. The solution set is { −7 } . (Simplify your answer.)

$\frac{-7x}{-7}=\frac{49}{-7}$

$x=-7$ //

ID: Quick Check PF.1.15

85. Solve the following linear equation. Be sure to verify your solution.

$0.06x-1.8=0.03x-1.2$

$0.06x-1.8=0.03x-1.2$

$0.06x-1.8+1.8=0.03x-1.2+1.8$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$0.06x=0.03x+.6$

- A. The solution set is { } . (Type an integer or a decimal.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

$0.06x-0.03x=0.03x+.6-0.03x$

$.03x=.6$

Answer: A. The solution set is { 20 } .(Type an integer or a decimal.)

$\frac{.03x}{.03}=\frac{.6}{.03}$

ID: Quick Check PF.1.23

$x=20$ //

86. Solve the following linear equation. Identify the equation as an identity, contradiction, or conditional equation.

$2(x+4)=2x+4$

$2(x+4)=2x+4$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$2x+8=2x+4$

- A. The solution set is { }. (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

$2x+8-8=2x+4-8$

$2x=2x-4$

State whether the equation is an identity, contradiction, or conditional equation.

$2x-2x=2x-4-2x$

$0\neq -4$ BAD

- Identity
- Contradiction
- Conditional equation

Answers C. The solution is the empty set.

The solution is the empty set

Contradiction

Contradiction

ID: Quick Check PF.1.27

87. Solve the following equation and state whether it is an identity, a contradiction, or a conditional equation.

$4(x-3)=3x-12+x$

$4(x-3)=3x-12+1x$

$4x-12=3x-12+1x$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$4x-12=4x-12$

- A. The solution set is { }. (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set or ∅.

$4x-12+12=4x-12+12$

$4x=4x$

State whether the equation is an identity, contradiction, or conditional equation. Choose the correct choice below.

$4x-4x=4x-4x$

$0=0$ GOOD

- identity
- contradiction
- conditional equation

Answers B. The solution is all real numbers.

The solution is all real numbers

identity

ID: Quick Check PF.1.28

identity

88. Solve for the indicated variable.

$Bx + Gy = M$, for x

x = ____________ (Simplify your answer.)

Answer: $\frac{M - Gy}{B}$

ID: Quick Check PF.1.34

---

89. Solve the following equation.

$9x + 3 = 48$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is { ____ }. (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

Answer: A. The solution set is { 5 }. (Type an integer or a simplified fraction.)

ID: PF.1.43

---

90. Solve the following linear equation.

$5z + 4 = 3$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is { ____ }. (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

Answer: A. The solution set is { $-\frac{1}{5}$ }. (Type an integer or a simplified fraction.)

ID: PF.1.45

91. Solve the following linear equation.

$-7w + 6w + 2 = -3$

$-7w + 6w + 2 = -3$

$-1w + 2 = -3$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$-1w + 2 - 2 = -3 - 2$

- A. The solution set is { } . (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

$-1w = -5$

$\frac{-1w}{-1} = \frac{-5}{-1}$

Answer: A. The solution set is { 5 } . (Type an integer or a simplified fraction.)

$w = 5$

ID: PF.1.47

92. Solve the following linear equation.

$3(x + 3) = -9$

$3(x+3) = -9$

$3x + 9 = -9$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$3x + 9 - 9 = -9 - 9$

- A. The solution set is { } . (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

$3x = -18$

$\frac{3x}{3} = \frac{-18}{3}$

Answer: A. The solution set is { -6 } . (Type an integer or a simplified fraction.)

$x = -6$

ID: PF.1.51

93. Solve the following linear equation.

$\frac{3y}{5} - \frac{13}{30} = \frac{y}{6}$

$\frac{3y}{5}(30) - \frac{13}{30}(30) = \frac{y}{6}(30)$ LCD = 30

$3y(6) - 13(1) = y(5)$ Mult

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

$18y - 13 = 5y$

- A. The solution set is { } . (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

$18y - 13 + 13 = 5y + 13$

$18y = 5y + 13$

Answer: A. The solution set is { 1 } . (Type an integer or a simplified fraction.)

$18y - 5y = 5y + 13 - 5y$

$13y = 13$

$\frac{13y}{13} = \frac{13}{13}$

$y = 1$

ID: PF.1.53

94. Solve the following linear equation. Identify the equation as an identity, contradiction, or conditional equation.

$$\frac{x}{6}+\frac{5x}{8}=-\frac{19}{24}$$

$\frac{x}{6}(24)+\frac{5x}{8}(24)=-\frac{19}{24}(24)$ LCD=24

$x(4)+5x(3)=-19(1)$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is { _____ }. (Type an integer or a simplified fraction.)
- B. The solution is all real numbers.
- C. The solution is the empty set.

$4x+15x=-19$

$19x=-19$

State whether the equation is an identity, contradiction, or conditional equation.

$\frac{19x}{19}=\frac{-19}{19}$

- Identity
- Contradiction
- Conditional equation

$x=-1$

Answers A. The solution set is { −1 }. (Type an integer or a simplified fraction.)

Conditional equation

ID: PF.1.69

95. Solve for y.

$7x+y=28$

y = _____

$7x+y=28$ (y)

$7x+y-7x=28-7x$

$y=28-7x$

$y=-7x+28$ rewrite

Answer: $-7x+28$

ID: PF.1.87

96. Solve the equation for y.

$3x+7y=23$

y = _____ (Simplify your answer.)

$3x+7y=23$ (y)

$3x+7y-3x=23-3x$

$7y=23-3x$

$\frac{7y}{7}=\frac{23}{7}-\frac{3x}{7}$

$y=\frac{23}{7}-\frac{3x}{7}$ or

$y=-\frac{3}{7}x+\frac{23}{7}$ rewrite

Answer: $-\frac{3}{7}x+\frac{23}{7}$

ID: PF.1.89

97. Factor out the greatest common factor.

$4b^2 - 12b$

$4b^2 - 12b =$ _____ (Type your answer in factored form.)

$4b^2 - 12b =$

$4b(b - 3) =$

Answer: 4b(b − 3)

ID: Quick Check PF.2.9

98. Factor the following polynomial.

$x^2 + 11x + 24$

$x^2 + 11x + 24$

$(x + 3)(x + 8)$

Possibly
24. 1
12. 2
6. 4
3. 8

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $x^2 + 11x + 24 =$ _____ (Type your answer in factored form.)
- B. The polynomial is prime.

Answer: A. $x^2 + 11x + 24 =$ **(x + 3)(x + 8)** (Type your answer in factored form.)

ID: Quick Check PF.3.4

99. Factor the polynomial.

$x^2 - 17x + 72$

$x^2 - 17x + 72 =$

$(x - 8)(x - 9) =$

Possible
72. 1
36. 2
18. 4
9. 8

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. $x^2 - 17x + 72 =$ _____
- B. The polynomial is prime.

Answer: A. $x^2 - 17x + 72 =$ **(x − 9)(x − 8)**

ID: Quick Check PF.3.7

100. Factor the polynomial.

$x^2 - x - 72$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ A. $x^2 - x - 72 =$ _____

○ B. The polynomial is prime.

Answer: A. $x^2 - x - 72 =$ **$(x + 8)(x - 9)$**

ID: Quick Check PF.3.8

---

101. Solve the quadratic equation by completing the square.

$x^2 + 8x = 20$

The solution set is {_____}.
(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

Answer: 2, − 10

ID: PF.5.15

---

102. Solve the following equation.

$19 = 1 + 6(x - 12)$

The solution set is {_____}

Answer: 15

ID: F.2.1

---

103. Solve the equation by factoring.

$z^2 + 2z - 15 = 0$

What is the solution set?

{_____} (Use a comma to separate answers as needed.)

Answer: − 5, 3

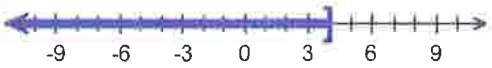
ID: F.2.2

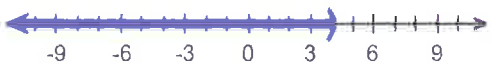
---

104. Solve the inequality $20 - 2x > 12$. Graph the solution set.

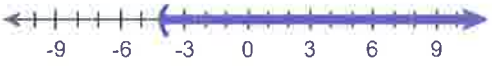
In set notation, the solution is $\{x|$ _____ $\}$. (Type an inequality.)

Graph the solution set. Choose the correct graph below.

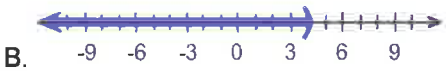
A. 

B. 

C. 

D. 

Answers $x < 4$

B. 

ID: 1.1.4

$20 - 2x > 12$

$20 - 2x - 20 > 12 - 20$

$-2x > -8$

$\frac{-2x}{-2} < \frac{-8}{-2}$

divide by a negative turn the all signs around

$x < 4$

$(-\infty, 4)$

105. Find the following for the function $f(x) = 4x^2 + 3x - 4$.

(a) $f(0)$ **(b)** $f(3)$ **(c)** $f(-3)$ **(d)** $f(-x)$
(e) $-f(x)$ **(f)** $f(x+2)$ **(g)** $f(5x)$ **(h)** $f(x+h)$

(a) $f(0) =$ _____ (Simplify your answer.)

(b) $f(3) =$ _____ (Simplify your answer.)

(c) $f(-3) =$ _____ (Simplify your answer.)

(d) $f(-x) =$ _____ (Simplify your answer.)

(e) $-f(x) =$ _____ (Simplify your answer.)

(f) $f(x+2) =$ _____ (Simplify your answer.)

(g) $f(5x) =$ _____ (Simplify your answer.)

(h) $f(x+h) =$ _____ (Simplify your answer.)

Answers -4

41

23

$4x^2 - 3x - 4$

$-4x^2 - 3x + 4$

$4x^2 + 19x + 18$

$100x^2 + 15x - 4$

$4x^2 + 8hx + 4h^2 + 3x + 3h - 4$

ID: 1.1.43

(105) a $f(x) = 4x^2 + 3x - 4$

$f(0) = 4(0)^2 + 3(0) - 4$

$f(0) = 4(0)(0) + 3(0) - 4$

$f(0) = 4(0) + 3(0) - 4$

$f(0) = 0 + 0 - 4$

$f(0) = 0 - 4$

$f(0) = -4$ ✓

(105) b $f(x) = 4x^2 + 3x - 4$

$f(3) = 4(3)^2 + 3(3) - 4$

$f(3) = 4(3)(3) + 3(3) - 4$

$f(3) = 4(9) + 3(3) - 4$

$f(3) = 36 + 9 - 4$

$f(3) = 45 - 4$

$f(3) = 41$ ✓

(105) c $f(x) = 4x^2 + 3x - 4$

$f(-3) = 4(-3)^2 + 3(-3) - 4$

$f(-3) = 4(-3)(-3) + 3(-3) - 4$

$f(-3) = 4(9) + 3(-3) - 4$

$f(-3) = 36 - 9 - 4$

$f(-3) = 27 - 4$ ✓

$f(-3) = 23$

(105) d $f(x) = 4x^2 + 3x - 4$

$f(-x) = 4(-x)^2 + 3(-x) - 4$

$f(-x) = 4(-x)(-x) + 3(-x) - 4$

$f(-x) = 4(x^2) + 3(-x) - 4$ ✓

$f(-x) = 4x^2 - 3x - 4$

(105) e $f(x) = 4x^2 + 3x - 4$

$-f(x) = -(4x^2 + 3x - 4)$

$-f(x) = -4x^2 - 3x + 4$ ✓

(105) f $f(x) = 4x^2 + 3x - 4$

$f(x+2) = 4(x+2)^2 + 3(x+2) - 4$

$f(x+2) = 4(x+2)(x+2) + 3(x+2) - 4$

$f(x+2) = 4(x^2 + 2x + 2x + 4) + 3(x+2) - 4$

$f(x+2) = 4(x^2 + 4x + 4) + 3(x+2) - 4$

$f(x+2) = 4x^2 + 16x + 16 + 3x + 6 - 4$

$f(x+2) = 4x^2 + 19x + 18$ ✓

(105) g $f(x) = 4x^2 + 3x - 4$

$f(5x) = 4(5x)^2 + 3(5x) - 4$

$f(5x) = 4(5x)(5x) + 3(5x) - 4$

$f(5x) = 4(25x^2) + 3(5x) - 4$

$f(5x) = 100x^2 + 15x - 4$ ✓

(105) h $f(x) = 4x^2 + 3x - 4$

$f(x+h) = 4(x+h)^2 + 3(x+h) - 4$

$f(x+h) = 4(x+h)(x+h) + 3(x+h) - 4$

$f(x+h) = 4(x^2 + 1xh + 1xh + h^2) + 3(x+h) - 4$

$f(x+h) = 4(x^2 + 2xh + h^2) + 3(x+h) - 4$ ✓

$f(x+h) = 4x^2 + 8xh + 4h^2 + 3x + 3h - 4$

106. For the given functions f and g, complete parts (a)-(h). For parts (a)-(d), also find the domain.

$f(x) = 3x + 5;\ g(x) = 9x - 7$

(a) Find $(f+g)(x)$.

$(f+g)(x) =$ _____ (Simplify your answer.)

What is the domain of $f+g$? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The domain is $\{x|$ _____ $\}$.
  (Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)
- B. The domain is $\{x|\ x$ is any real number$\}$.

(b) Find $(f-g)(x)$.

$(f-g)(x) =$ _____ (Simplify your answer.)

What is the domain of $f-g$? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The domain is $\{x|$ _____ $\}$.
  (Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)
- B. The domain is $\{x|\ x$ is any real number$\}$.

(c) Find $(f \cdot g)(x)$.

$(f \cdot g)(x) =$ _____ (Simplify your answer.)

What is the domain of $f \cdot g$? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The domain is $\{x|$ _____ $\}$.
  (Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)
- B. The domain is $\{x|\ x$ is any real number$\}$.

(d) Find $\left(\frac{f}{g}\right)(x)$.

$\left(\frac{f}{g}\right)(x) =$ _____ (Simplify your answer.)

What is the domain of $\frac{f}{g}$? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The domain is $\{x|$ _____ $\}$.
  (Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)
- B. The domain is $\{x|\ x$ is any real number$\}$.

$(f+g)(x) = 12x - 2$

$(f+g)(4) = 12(4) - 2$

$(f+g)(4) = 48 - 2$

$(f+g)(4) = 46$

(e) Find $(f+g)(4)$.

$(f+g)(4) =$ _____ (Type an integer or a simplified fraction.)

(f) Find $(f-g)(3)$.

$(f-g)(3) =$ _____ (Type an integer or a simplified fraction.)

(g) Find $(f \cdot g)(2)$.

$(f \cdot g)(2) =$ _____ (Type an integer or a simplified fraction.)

(h) Find $\left(\frac{f}{g}\right)(1)$.

$\left(\frac{f}{g}\right)(1) =$ _____ (Type an integer or a simplified fraction.)

Answers $12x-2$

B. The domain is $\{x \mid x \text{ is any real number}\}$.

$-6x+12$

B. The domain is $\{x \mid x \text{ is any real number}\}$.

$27x^2+24x-35$

B. The domain is $\{x \mid x \text{ is any real number}\}$.

$\frac{3x+5}{9x-7}$

A. The domain is $\left\{x \mid x \neq \frac{7}{9}\right\}$.

(Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

46

-6

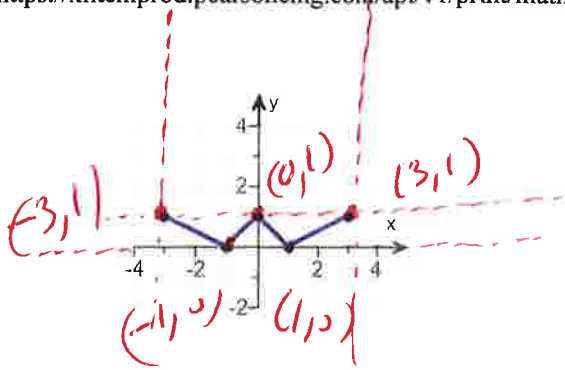
121

4

ID: 1.1.67

107. Using the given graph of the function f, find the following.

(a) the intercepts, if any
(b) its domain and range
(c) the intervals on which it is increasing, decreasing, or constant
(d) whether it is even, odd, or neither



x-intercept x-intercept y-intercept

(a) What are the intercepts?

(-1,0) (1,0) (0,1)

(Simplify your answer. Type an ordered pair. Use a comma to separate answers as needed.)

(b) The domain is [-3, 3] ← [left, right]

(Type your answer in interval notation.)

The range is [0, 1] ← [bottom, TOP]

(Type your answer in interval notation.)

(c) On which interval(s) is the graph increasing? Select the correct choice below and fill in any answer boxes within your choice.

- A. The graph is increasing on [-1, 0] [1, 3]
  (Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The graph is not increasing on any interval.

On which interval(s) is the graph decreasing? Select the correct choice below and fill in any answer boxes within your choice.

- A. The graph is decreasing on [-3, -1] [0, 1]
  (Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The graph is not decreasing on any interval.

On which interval(s) is the graph constant? Select the correct choice below and fill in any answer boxes within your choice.

- A. The graph is constant on _____
  (Type your answer in interval notation. Use a comma to separate answers as needed.)
- B. The graph is not constant on any interval.

(d) The function is (1) _____

(1)
- neither odd nor even.
- even.
- odd.

Answers $(-1,0),(1,0),(0,1)$

$[-3,3]$

$[0,1]$

A. The graph is increasing on **$[-1,0],[1,3]$** .
(Type your answer in interval notation. Use a comma to separate answers as needed.)

A. The graph is decreasing on **$[-3,-1],[0,1]$** .
(Type your answer in interval notation. Use a comma to separate answers as needed.)

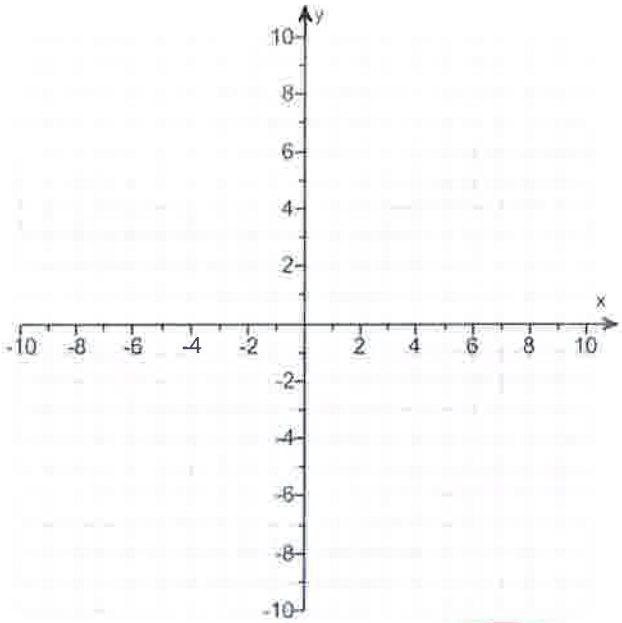
B. The graph is not constant on any interval.

(1) even.

ID: 1.3.25

108.

(a) Graph $f(x) = |x + 6| - 4$ using transformations.
(b) Find the area of the region bounded by f and the x-axis that lies below the x-axis.

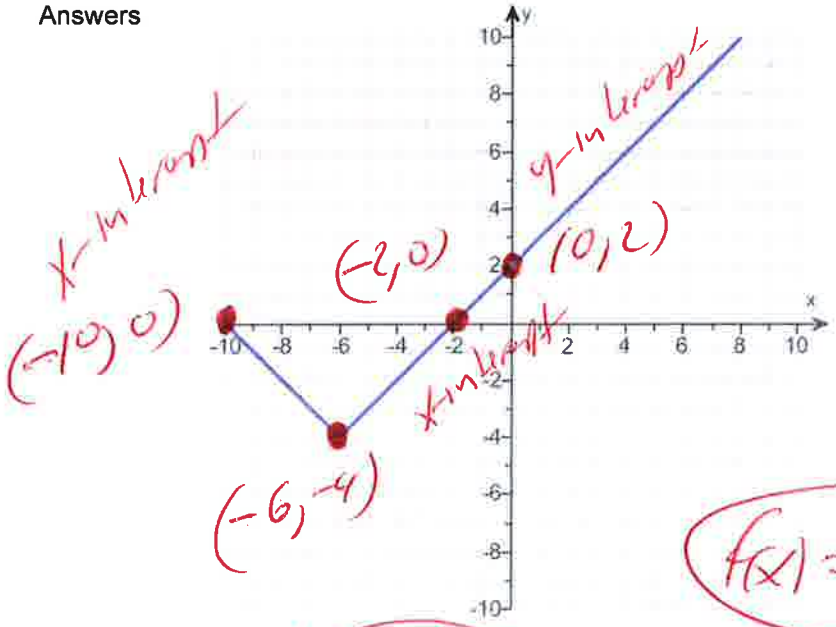


(a) Graph f(x).

(Use the graphing tool provided to graph the function.)

(b) The area of the region bounded by f and the x-axis that lies below the x-axis is _____ square units.
(Simplify your answer.)

Answers



x	f(x)
-10	0
-6	-4
-2	0
0	2

$f(x) = |x+6| - 4$

Shift left 6

Shift down 4

window
x-min = -12
x-max = 12
y-min = -10
y-max = 10

use graphing calculator

$y_1 = \text{math, num, abs}$

$y_1 = \text{abs}(x+6) - 4$

16

ID: 1.5.81

109. Find the slope of the line joining the points (0,3) and (2,2).

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ **A.** The slope is _____ (Simplify your answer.)

○ **B.** The slope is undefined.

Answer: A. The slope is $-\frac{1}{2}$.(Simplify your answer.)

ID: 2.1.2

110. Solve the following equation.

$60x - 900 = -25x + 4200$

The solution set is {_____}. (Simplify your answer.)

Answer: 60

ID: 2.1.4

111. If $f(x) = x^2 - 1$, find $f(-9)$.

$f(-9) =$ _____

Answer: 80

ID: 2.1.5

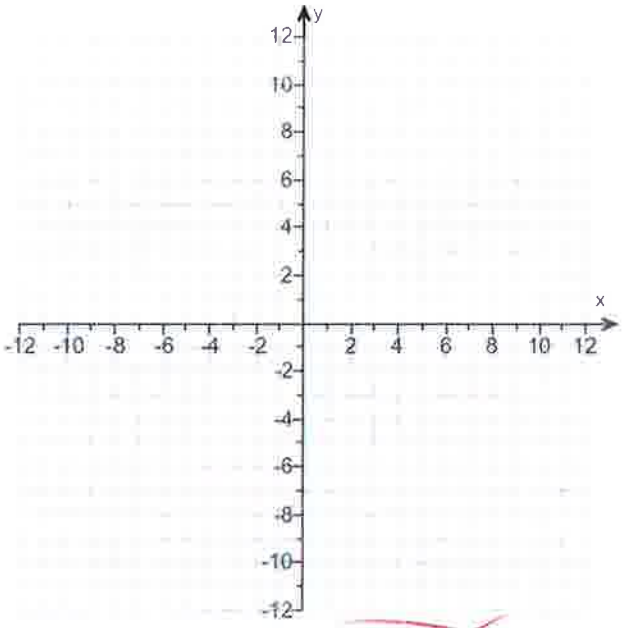
112.

(a) Find the zero of the linear function and (b) graph the function using the zero and y-intercept.

$g(x) = 3x - 9$

(a) The zero is _____.
(Type a whole number.)

(b) Use the graphing tool to graph the linear equation. Use the intercepts when drawing the line.



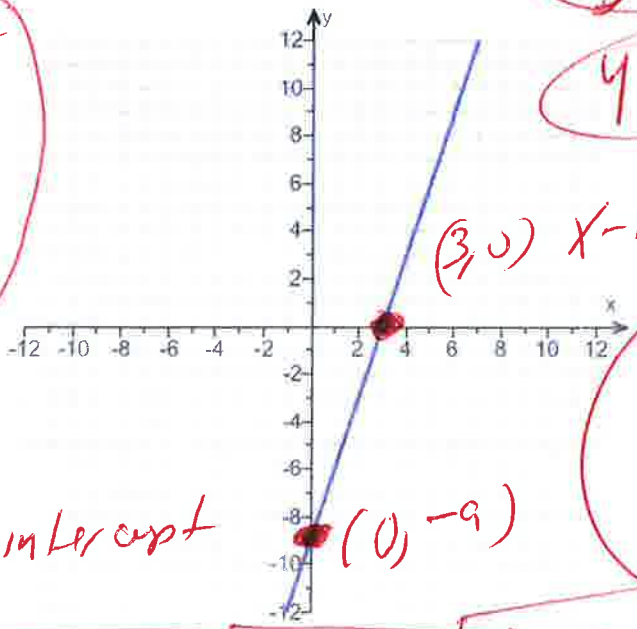
Answers 3

$g(x) = 3x - 9$

$y_1 = 3x - 9$ BIG

x	g(x)
0	-9
3	0

X-min = -12
X-max = 12
y-min = -10
y-max = 10



(3, 0) x-intercept

OR

Use graphing calculator

y-intercept (0, -9)

ID: 2.1.21

$g(x) = 3x - 9$
$g(0) = 3(0) - 9$
$g(0) = 0 - 9$
$g(0) = -9$

$g(x) = 3x - 9$
$g(3) = 3(3) - 9$
$g(3) = 9 - 9$
$g(3) = 0$

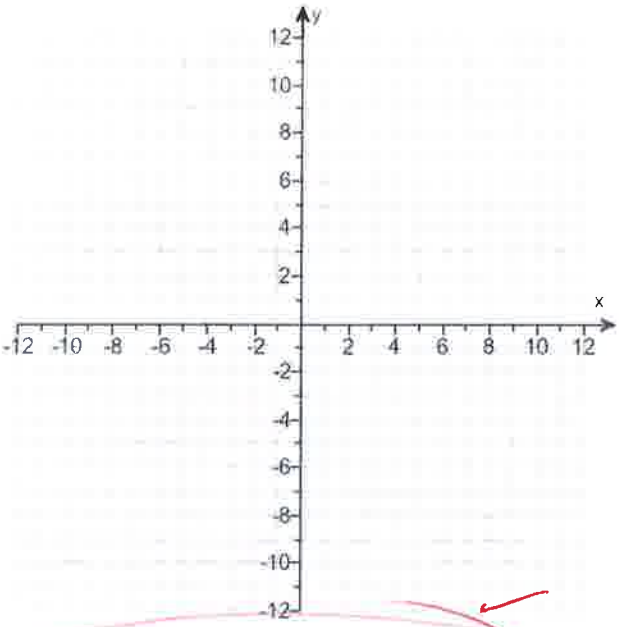
113.

(a) Find the zero of the linear function and
(b) graph the function using the zero and y-intercept.

$g(x) = -2x + 6$

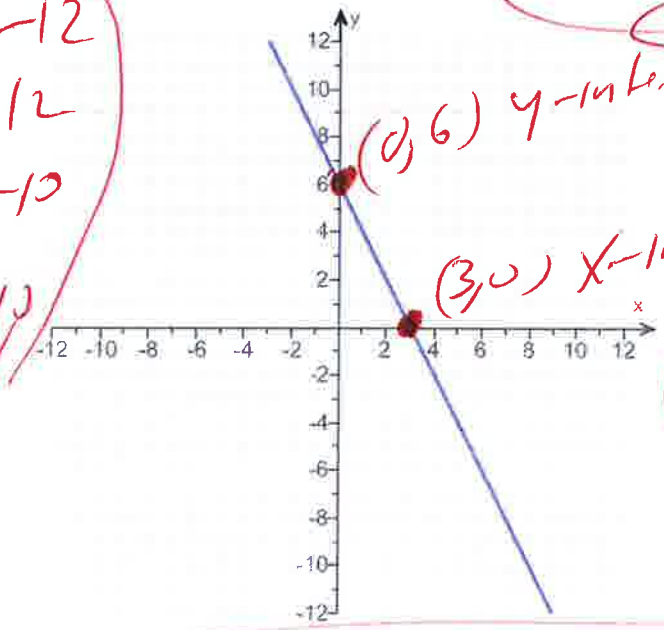
(a) The zero is _____.
(Type a whole number.)

(b) Use the graphing tool to graph the linear equation. Use the intercepts when drawing the line.



Answers 3

x-min = -12
x-max = 12
y-min = -10
y-max = 10



$g(x) = -2x + 6$

$y_1 = -2x + 6$

x	g(x)
0	6
3	0

OR use graphing calculator

$y_1 = -2x + 6$

ID: 2.1.23

$g(x) = -2x + 6$
$g(0) = -2(0) + 6$
$g(0) = 0 + 6$
$g(0) = 6$

$g(x) = -2x + 6$
$g(3) = -2(3) + 6$
$g(3) = -6 + 6$
$g(3) = 0$

114. Factor the given polynomial completely. If the polynomial cannot be factored, say that it is prime.

$x^2 + 5x + 6$

Select the correct choice below and fill in any answer boxes within your choice.

- A. $x^2 + 5x + 6 =$ _____
- B. The polynomial is prime.

Answer: A. $x^2 + 5x + 6 =$ **(x + 3)(x + 2)**

ID: 2.3.1

115. Solve the equation.

$(x - 4)(5x + 1) = 0$

The solution set is { _____ }. (Use a comma to separate answers as needed.)

Answer: $4, -\frac{1}{5}$

ID: 2.3.3

116. Find the zeros of the following quadratic function by factoring. What are the x-intercepts of the graph of the function?

$f(x) = x^2 - 15x$

Select the correct choice below and fill in the answer box to complete your choice.
(Simplify your answer. Use a comma to separate answers as needed.)

- A. The zeros and the x-intercepts are different. The zeros are _____, the x-intercepts are _____.
- B. The zeros and the x-intercepts are the same. They are _____.

Answer: B. The zeros and the x-intercepts are the same. They are **0,15**

ID: 2.3.13

117. Find the zeros of the quadratic function by factoring. What are the x-intercepts of the graph of the function?

$g(x) = x^2 - 1$ → $x^2 - 1 = 0$ $(x)^2 - (1)^2 = 0$ $(x+1)(x-1) = 0$

Select the correct choice below and fill in the answer box to complete your choice.
(Use a comma to separate answers as needed. Type an integer or a simplified fraction.)

A. The zeros and the x-intercepts are the same. They are $x+1=0$ or $x-1=0$

B. The zeros and the x-intercepts are different. The zeros are _____, the x-intercepts are _____.

$x+1-1=0-1$ OR $x-1+1=0+1$
$x=-1$ OR $x=1$

Answer: A. The zeros and the x-intercepts are the same. They are 1, −1

a^2-b^2 Formula
$(a+b)(a-b)$

ID: 2.3.15

---

118. Find the zeros of the quadratic function by factoring. What are the x-intercepts of the graph of the function?

$F(x) = x^2 - x - 20$ → $x^2 - x - 20 = 0$

Possibly 20 1, 10 2, 4 5

Select the correct choice below and fill in the answer box to complete your choice.
(Use a comma to separate answers as needed. Type an integer or a simplified fraction.)

A. The zeros and the x-intercepts are different. The zeros are _____, the x-intercepts are _____.

B. The zeros and the x-intercepts are the same. They are

$(x+4)(x-5) = 0$
$x+4=0$ OR $x-5=0$

Answer: B. The zeros and the x-intercepts are the same. They are −4,5

$x+4-4=0-4$ OR $x-5+5=0+5$
$x=-4$ OR $x=5$

ID: 2.3.17

---

119. Find the zeros of the quadratic function by factoring. What are the x-intercepts of the graph of the function?

$g(x) = 3x^2 - x - 2$ $3x^2 - x - 2 = 0$ $(3x+2)(x-1) = 0$

Select the correct choice below and fill in the answer box to complete your choice.
(Use a comma to separate answers as needed. Type an integer or a simplified fraction.)

A. The zeros and the x-intercepts are the same. They are $3x+2=0$ OR $x-1=0$

B. The zeros and the x-intercepts are different. The zeros are _____, the x-intercepts are _____.

$3x+2-2=0-2$ OR $x-1+1=0+1$
$3x=-2$ $x=1$

Answer: A. The zeros and the x-intercepts are the same. They are $-\frac{2}{3}$,1

$\frac{3x}{3} = \frac{-2}{3}$

$x = -\frac{2}{3}$

ID: 2.3.19

120. Find the zeros of the following quadratic function by factoring. What are the x-intercepts of the graph of the function?

$g(x) = x(x+9) + 14$

$x^2 + 9x + 14 = 0$ Set

$(x+2)(x+7) = 0$

$x+2=0$ OR $x+7=0$

$x+2-2=0-2$ OR $x+7-7=0-7$

$x=-2$ OR $x=-7$

-2, -7

-14.1

-2.7

Select the correct choice below and fill in the answer box to complete your choice.
(Simplify your answer. Use a comma to separate answers as needed.)

- A. The zeros and the x-intercepts are the same. They are _____.
- B. The zeros and the x-intercepts are different. The zeros are _____, the x-intercepts are _____.

Answer: A. The zeros and the x-intercepts are the same. They are **-2, -7**.

ID: 2.3.23

---

121. Find the zeros of the quadratic function using the square root method. What are the x-intercepts of the graph of the function?

$g(x) = (x-6)^2 - 9$

$(x-6)^2 - 9 = 0$ Set

Select the correct choice below and fill in the answer box to complete your choice.
(Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

- A. The zeros and the x-intercepts are the same. They are _____.
- B. The zeros and the x-intercepts are different. The zeros are _____, the x-intercepts are _____.

Answer: A. The zeros and the x-intercepts are the same. They are **9,3**.

ID: 2.3.29

$(x-6)^2 - 9 = 0$

$(x-6)^2 = 9$

$\sqrt{(x-6)^2} = \pm\sqrt{9}$

$x-6 = \pm 3$

$x-6 = -3$ OR $x-6 = 3$

$x-6+6 = -3+6$ OR $x-6+6 = 3+6$

$x = 3$ OR $x = 9$

122. Find the zeros, if any, of the quadratic function using the quadratic formula. What are the x-intercepts, if any, of the graph of the function?

$f(x) = 4x^2 + 5 + 10x$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.
(Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

- A. The zeros and the x-intercepts are the same. They are _____.
- B. The zeros and the x-intercepts are different. The zeros are _____, the x-intercepts are _____.
- C. There is no real zero solution and no x-intercept.

Answer: A. The zeros and the x-intercepts are the same. They are $\frac{-5+\sqrt{5}}{4}, \frac{-5-\sqrt{5}}{4}$.

ID: 2.3.47

123. Find the real zeros of the quadratic function using any method you wish. What are the x-intercepts, if any, of the graph of the function?

$G(x) = 10x^2 + 19x - 15$

Select the correct choice below and fill in the answer box to complete your choice.

- A. The zeros and the x-intercepts are the same. They are _____.
- B. The zeros and the x-intercepts are different. The zeros are _____, the x-intercepts are _____.

(Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

Answer: A. The zeros and the x-intercepts are the same. They are $-\frac{5}{2}, \frac{3}{5}$.

ID: 2.3.81

124. Find the real solutions of the following equation.

$8x^2 + 2x - 15 = 0$

Select the correct choice below and, if necessary, fill in the answer box to complete your answer.

- A. The real solutions are _____.
  (Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
- B. There are no real solutions.

Answer: A. The real solutions are $-\frac{3}{2}, \frac{5}{4}$

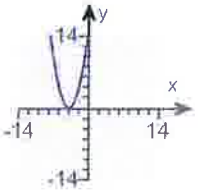
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

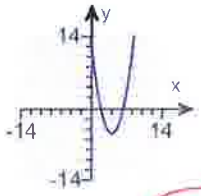
ID: 2.4.2

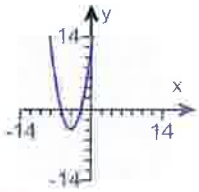
125. Match the graph with the following function.

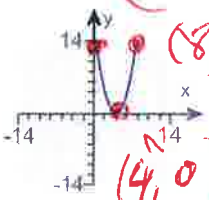
$f(x) = x^2 - 8x + 16$

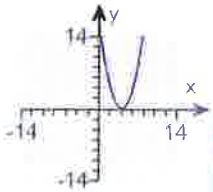
Choose the correct graph below.

A. 

B. 

C. 

D. 

Answer: D. 

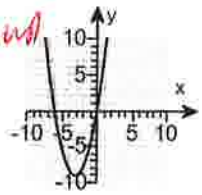
ID: 2.4.15

126. Match the function $f(x) = x^2 - 6x$ to one of the given graphs.

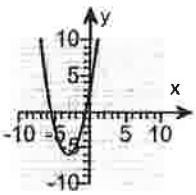
Choose the correct graph below.

○ A.

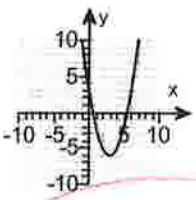
○ B.



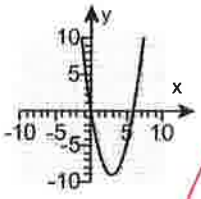
○ C.



○ D.



Answer:



A.

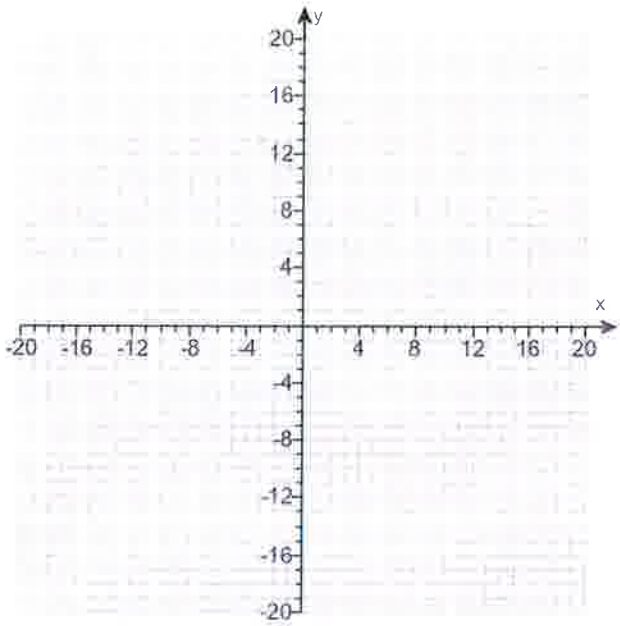
ID: 2.4.19

127.

Next page please

127

For the quadratic function $f(x) = x^2 - 4x - 5$, answer parts **(a)** through **(c)**.



(a) Graph the quadratic function by determining whether its graph opens up or down and by finding its vertex, axis of symmetry, y-intercept, and x-intercepts, if any.

Does the graph of f open up or down?

- ○ up
- ○ down

What are the coordinates of the vertex?

The vertex of the parabola is _____.
(Type an ordered pair. Use integers or fractions for any numbers in the expression.)

What is the equation of the axis of symmetry?

The axis of symmetry is _____.
(Type an equation.)

What is/are the x-intercept(s)? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ **A.** The x-intercept(s) is/are _____.
  (Type an integer or a decimal. Use a comma to separate answers as needed.)
- ○ **B.** There are no x-intercepts.

What is the y-intercept? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ○ **A.** The y-intercept is _____.
  (Type an integer or a decimal.)
- ○ **B.** There is no y-intercept.

Use the graphing tool to graph the function.

(b) Determine the domain and the range of the function.

The domain of f is _____.
(Type your answer in interval notation.)

The range of f is _____.
(Type your answer in interval notation.)

(c) Determine where the function is increasing and where it is decreasing.

Except swimming in the ocean by yourself at 2:30 a.m. on Saturday night.

Answers up

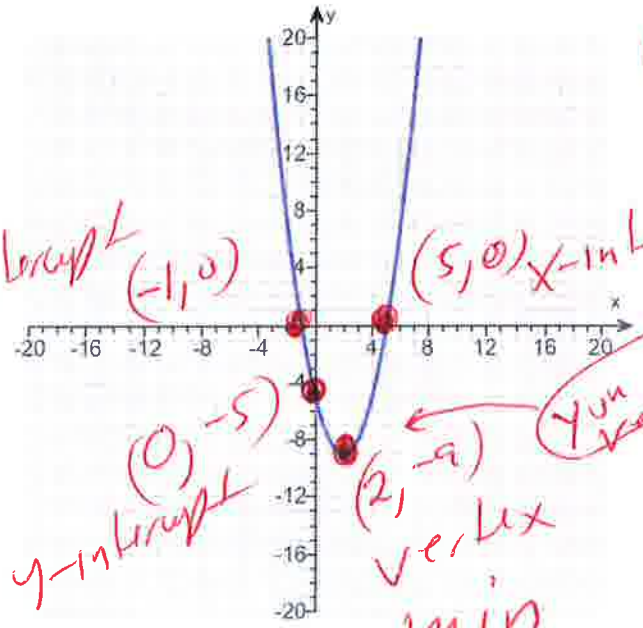
(2, − 9)

x = 2

A. The x-intercept(s) is/are 5, − 1 .
(Type an integer or a decimal. Use a comma to separate answers as needed.)

A. The y-intercept is − 5 .(Type an integer or a decimal.)

$f(x) = x^2 - 4x - 5$



x-intercept (-1, 0)

(5, 0) x-intercept

(0, -5) y-intercept

(2, -9) vertex

You are the vertex

OR Vertex

x	f(x)
-1	0
0	-5
2	-9
5	0

(− ∞, ∞)

[− 9, ∞)

[2, ∞)

(− ∞, 2]

min

x-min = -12
x-max = 12
y-min = -10
y-max = 10

use graphing calculator

ID: 2.4.37

Good News Sharks eat only in the day.

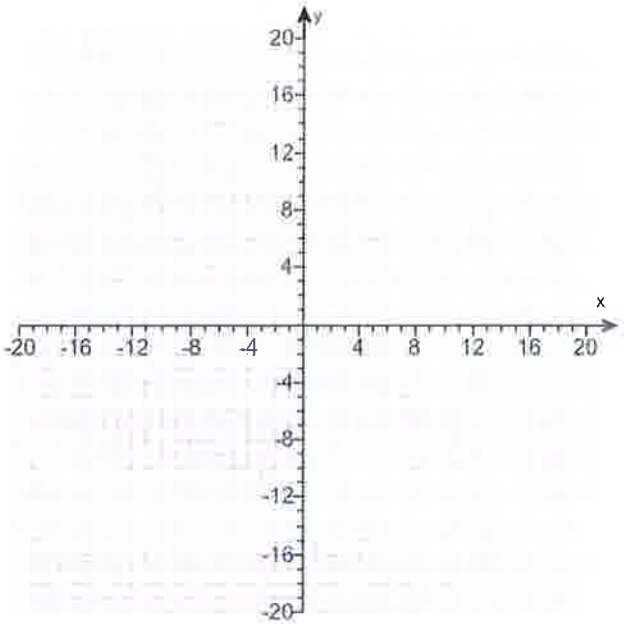
BIG BIG

$y_1 = x^2 - 4x - 5$

128. Next Pic Please thanks.

128.

For the quadratic function $f(x) = x^2 + 6x + 9$, answer parts **(a)** through **(c)**.



(a) Graph the quadratic function by determining whether its graph opens up or down and by finding its vertex, axis of symmetry, y-intercept, and x-intercepts, if any.

Does the graph of f open up or down?

- up
- down

What are the coordinates of the vertex?

The vertex of the parabola is _____.
(Type an ordered pair. Use integers or fractions for any numbers in the expression.)

What is the equation of the axis of symmetry?

The axis of symmetry is _____.
(Type an equation.)

What is the y-intercept? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The y-intercept is _____.
  (Type an integer or a decimal.)
- **B.** There is no y-intercept.

What is/are the x-intercept(s)? Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The x-intercept(s) is/are _____.
  (Type an integer or a decimal. Use a comma to separate answers as needed.)
- **B.** There are no x-intercepts.

Use the graphing tool to graph the function.

(b) Determine the domain and the range of the function.

The domain of f is _____.
(Type your answer in interval notation.)

The range of f is _____.
(Type your answer in interval notation.)

(c) Determine where the function is increasing and where it is decreasing.

Example
Swimming in the sea at 2:33 am on Saturday night by yourself

$f(x) = x^2 + 6x + 9$

Answers up

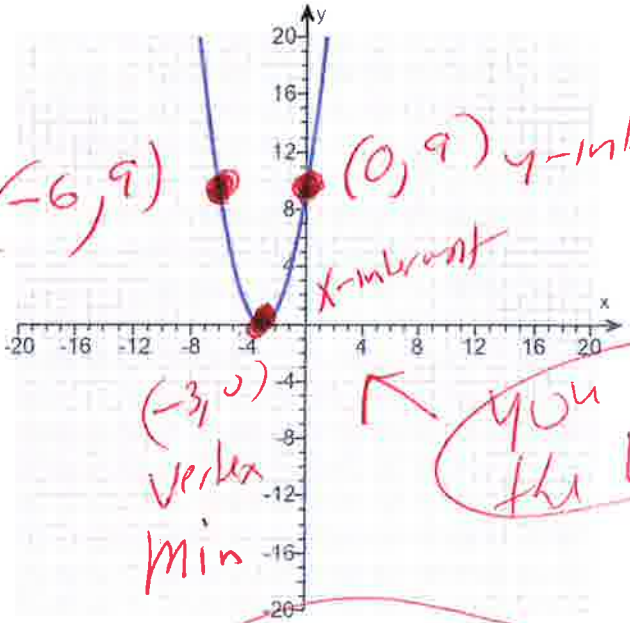
(−3,0)

x = −3

A. The y-intercept is **9** .(Type an integer or a decimal.)

A. The x-intercept(s) is/are **−3** .

(Type an integer or a decimal. Use a comma to separate answers as needed.)



x	f(x)
−6	9
−3	0
0	9

Vertex

Use Graphing Calculator

(−∞,∞)

[0,∞)

[−3,∞)

(−∞,−3]

x-min = −12
x-max = 12
y-min = −10
y-max = 10

ID: 2.4.39

Great News Sharks always sleep at night and eat in the day ☺

$y_1 = x^2 + 6x + 9$

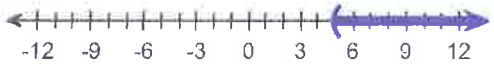
Always a family feast!

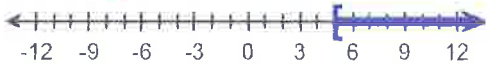
129. Solve the following inequality. Graph the solution set.

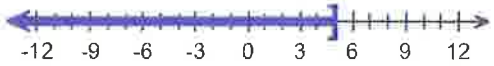
$7x - 4 > 31$

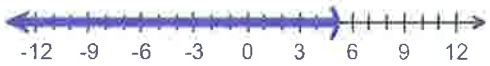
The solution is _____.
(Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

Choose the graph of the inequality below.

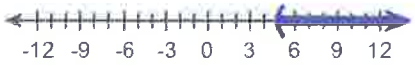
A. 

B. 

C. 

D. 

Answers (5,∞)

A. 

ID: 2.8.4

130. Find $f(-6)$ if $f(x) = 4x^2 + 4x + 5$.

$f(-6) =$ _____ (Simplify your answer. Type an integer or a fraction.)

Answer: 125

ID: 3.2.1

131. Use the rational zeros theorem to find all the real zeros of the polynomial function. Use the zeros to factor f over the real numbers.

$f(x) = x^3 - 5x^2 - 61x - 55$

Find the real zeros of f. Select the correct choice below and, if necessary, fill in the answer box to complete your answer.

A. x = _____

(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any rational numbers in the expression. Use a comma to separate answers as needed.)

B. There are no real zeros.

Use the real zeros to factor f.

f(x) = _____

(Simplify your answer. Type your answer in factored form. Type an exact answer, using radicals as needed. Use integers or fractions for any rational numbers in the expression.)

Answers A. x = **−5, −1, 11**

(Simplify your answer. Type an exact answer, using radicals as needed. Use integers or fractions for any rational numbers in the expression. Use a comma to separate answers as needed.)

$(x + 1)(x + 5)(x - 11)$

ID: 3.2.45

132. Solve the equation in the complex number system.

$x^2 - 14x + 130 = 0$

The solution set is {_____}. (Use a comma to separate answers as needed.)

Answer: $7 - 9i, 7 + 9i$

ID: 3.3.2

133. Solve the inequality. Express your answer using set notation or interval notation. Graph the solution set.

$9 - 4x \leq -7$

$9 - 4x \leq -7$

Choose the correct answer below that is the solution set to the inequality.

$9 - 4x - 9 \leq -7 - 9$

$-4x \leq -16$

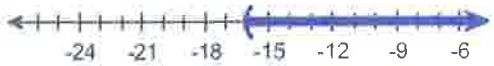
$\frac{-4x}{-4} \geq \frac{-16}{-4}$

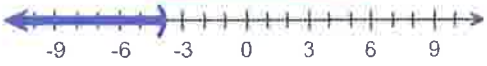
divide by a negative and turn all signs around

$x \geq 4$

- A. $\{x|x \geq -4\}$ or $[-4, \infty)$
- B. $\{x|x \geq -16\}$ or $[-16, \infty)$
- C. $\{x|x \leq 4\}$ or $(4, \infty)$
- D. $\{x|x \geq 4\}$ or $[4, \infty)$

Choose the correct graph below that is the solution set to the inequality.

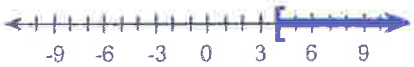
A. 

B. 

C. 

D. 

Answers D. $\{x|x \geq 4\}$ or $[4, \infty)$

C. 

$[4, \infty)$

ID: 3.6.1

134. Evaluate the following expression, if possible.

$27^{2/3}$

$27^{\frac{2}{3}} =$

$3^2 =$

$3 \cdot 3 =$

$9 =$

Prime 2, 3, 5, 7, 11 ...

27 | 3
9 | 3
3 | 3
1

$27 = 3 \cdot 3 \cdot 3$

$27 = 3^3$

Select the correct choice below and fill in any answer boxes in your choice.

$(3^3)^{\frac{2}{3}} =$ rewrite

$3^{\frac{3}{1}\left(\frac{2}{3}\right)} =$ multiply powers

$3^{\frac{6}{3}} =$

- A. $27^{2/3} =$ _____
- B. The solution is not a real number.

Answer: A. $27^{2/3} =$ 9

ID: Quick Check P4.1.10

135. Given $h(x) = 2x^2 - 3x + 3$, find $h(-3)$.

$h(-3) =$ _____

$h(-3) = 2(-3)^2 - 3(-3) + 3$

$h(-3) = 2(-3)(-3) - 3(-3) + 3$

$h(-3) = 2(9) - 3(-3) + 3$

$h(-3) = 18 + 9 + 3$

$h(-3) = 27 + 3$

$h(-3) = 30$

Answer: 30

PEMDAS

ID: 4.1.1

136. Solve by using the quadratic formula.

$x^2 - 10x - 39 = 0$

The solution set is { }.

(Simplify your answer. Use a comma to separate answers as needed. Express complex numbers in terms of i. Type an exact answer, using radicals as needed.)

Answer: $-3, 13$

ID: 4.6.1

137. Factor the given polynomial by removing the common monomial factor.

$9x + 63$

$9x + 63 =$ _____

Answer: $9(x + 7)$

ID: A.4.9

138. Factor the given polynomial completely. If the polynomial cannot be factored, say that it is prime.

$x^2 + 12x + 35$

Select the correct choice below and fill in any answer boxes within your choice.

○ **A.** $x^2 + 12x + 35 =$ _____

○ **B.** The polynomial is prime.

Answer: A. $x^2 + 12x + 35 =$ **(x + 7)(x + 5)**

ID: A.4.43

139. Factor the given polynomial completely. If the polynomial cannot be factored, say that it is prime.

$x^2 + 20x + 19$

Select the correct choice below and fill in any answer boxes within your choice.

- **A.** $x^2 + 20x + 19 =$ _____
- **B.** The polynomial is prime.

Answer: A. $x^2 + 20x + 19 =$ **(x + 19)(x + 1)**

ID: A.4.45

140. Factor the given polynomial.

$x^2 + 9x + 14$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** $x^2 + 9x + 14 =$ _____
- **B.** The polynomial is prime.

Answer: A. $x^2 + 9x + 14 =$ **(x + 2)(x + 7)**

ID: A.4.47

141. Factor the given polynomial.

$x^2 - 9x + 14$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** $x^2 - 9x + 14 =$ _____
- **B.** The polynomial is prime.

Answer: A. $x^2 - 9x + 14 =$ **(x − 7)(x − 2)**

ID: A.4.49

142. Factor the trinomial.

$x^2 - x - 42$

Select the correct choice below and fill in any answer boxes within your choice.

- A. $x^2 - x - 42 =$ _____
- B. The trinomial is prime.

Answer: A. $x^2 - x - 42 =$ **$(x + 6)(x - 7)$**

ID: A.4.51

143. Factor the given polynomial completely. If the polynomial cannot be factored, say that it is prime.

$x^2 + 4x - 21$

Select the correct choice below and fill in any answer boxes within your choice.

- A. $x^2 + 4x - 21 =$ _____
- B. The polynomial is prime.

Answer: A. $x^2 + 4x - 21 =$ **$(x - 3)(x + 7)$**

ID: A.4.53

144. Factor the given polynomial completely. If the polynomial cannot be factored, say that it is prime.

$6x^2 + 11x + 4$

Select the correct choice below and fill in any answer boxes within your choice.

- A. $6x^2 + 11x + 4 =$ _____
- B. The polynomial is prime.

Answer: A. $6x^2 + 11x + 4 =$ **$(3x + 4)(2x + 1)$**

ID: A.4.61

145. Factor the given polynomial completely. If the polynomial cannot be factored, say that it is prime.

$5x^2 + 19x - 4$ → $(5x-1)(x+4)$

Possible: 4.1, 2.2, 5.1

Select the correct choice below and fill in any answer boxes within your choice.

- A. $5x^2 + 19x - 4 =$ _____
- B. The polynomial is prime.

Check: $(5x-1)(x+4) = 5x^2+20x-1x-4 = 5x^2+19x-4 =$ Good

Answer: A. $5x^2 + 19x - 4 =$ **$(5x-1)(x+4)$**

ID: A.4.65

146. Factor the given polynomial.

$x^2 - 10x + 24$ → $(x-4)(x-6)$

Possible: 24.1, 12.2, 8.3, 6.4

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A. $x^2 - 10x + 24 =$ _____
- B. The polynomial is prime.

Check: $(x-4)(x-6) = x^2-6x-4x+24 = x^2-10x+24 =$ Good

Answer: A. $x^2 - 10x + 24 =$ **$(x-6)(x-4)$**

ID: A.4.85

147. Simplify the given expression. Assume that all variables are positive.

$\sqrt[5]{x^{35}y^{25}}$ → $\sqrt[5]{x^{35}y^{25}} =$

$\sqrt[5]{x^{35}y^{25}} =$ _____ (Type an exact answer, using radicals as needed.)

Answer: x^7y^5

$x^{\frac{35}{5}} \cdot y^{\frac{25}{5}} =$ Divide powers

$x^7y^5 =$

ID: A.7.25

148. Find the real solutions of the equation.

$\sqrt{8x-8} = 4$

What is the solution set? Select the correct choice below and fill in any answer boxes in your choice.

○ **A.** { } (Simplify your answer. Use a comma to separate answers as needed.)

○ **B.** There are no real solutions.

Answer: A. { 3 } (Simplify your answer. Use a comma to separate answers as needed.)

ID: A.8.47

$(\sqrt{8x-8})^2 = (4)^2$

$8x-8 = 16$

$8x-8+8 = 16+8$

$8x = 24$

$\frac{8x}{8} = \frac{24}{8}$

$x = 3$ Check

Try $x=3$

$\sqrt{8x-8} = 4$

$\sqrt{8(3)-8} = 4$

$\sqrt{24-8} = 4$

$\sqrt{16} = 4$

$4 = 4$ Good

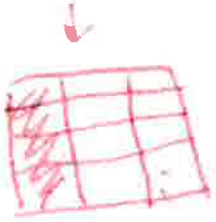
Answer

$x=3$ only

value: 1 ticket
value: 1 ticket
IN THE SEA ON A PIZZA

SMART Bird

$\frac{1}{3} \times \frac{4}{4} = \frac{4}{12}$, $\frac{2}{4} \times \frac{3}{3} = \frac{6}{12}$



MATH IS FUN

$\frac{4}{12} + \frac{6}{12} = \frac{10}{12} = \frac{5}{6}$

$\frac{12}{12} - \frac{10}{12} = \frac{2}{12}$ or $\frac{1}{6}$

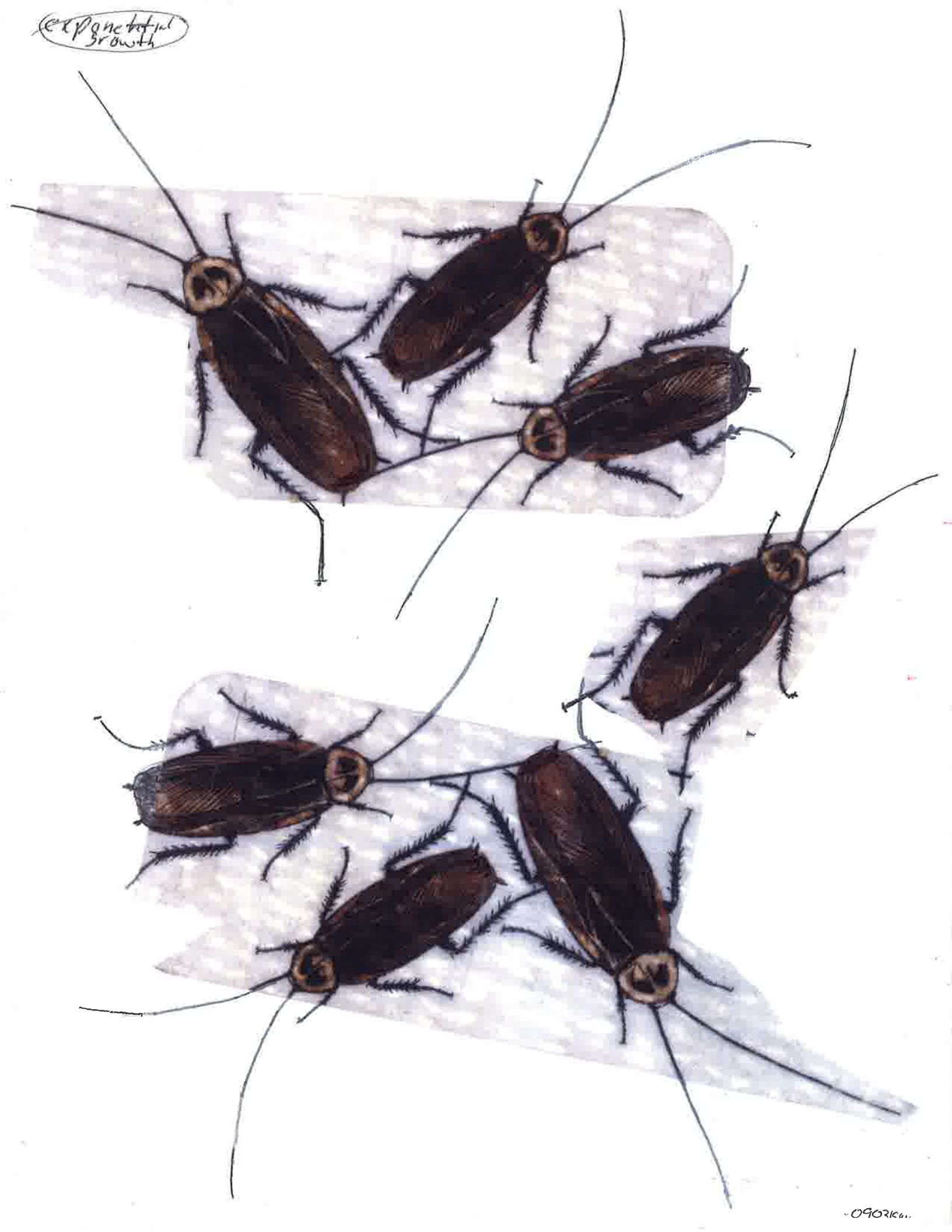

BROKEN SURFBOARD
121119.Aria


MATH is
FUN


MATH
MATH
MATH is Fun

(exponential growth)

090315ue


Exponential growth