Student: _____	**Instructor:** Alfredo Alvarez	**Assignment:**
Date: _____	**Course:** Math 1314 Sullivan Coreq	finalm1314COC150sullljjplace

1. Approximate the given number **(a)** truncated and (**b**) rounded to two decimal places.

   3.5684523

   (a) The given number truncated to two decimal places is [ ].

   (b) The given number rounded to two decimal places is [ ].

   Answers 3.56

   3.57

   ID: Quick Check R.1.29

2. Use the Distributive Property to remove the parentheses.

   $5(2x + 4)$

   $5(2x + 4) =$ [ ]

   Answer: $10x + 20$

   ID: Quick Check R.2.40

3. Evaluate.

   $|7 - 13|$

   $|7 - 13| =$ [ ]

   Answer: 6

   ID: R.2.67

4. Write the given fraction in simplest form.

   $\frac{30}{20}$

   $\frac{30}{20} =$ [ ]

   Answer: $\frac{3}{2}$

   ID: Quick Check R.3.3

5. Find the product, and write in lowest terms, if necessary.

$$-\frac{7}{3} \cdot \frac{9}{14}$$

$-\frac{7}{3} \cdot \frac{9}{14} =$ ☐ (Type an integer or a simplified fraction.)

Answer: $-\frac{3}{2}$

ID: Quick Check R.3.4

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6. Divide and express your answer in lowest terms.

$$\frac{9}{10} \div \left(-\frac{3}{2}\right)$$

$\frac{9}{10} \div \left(-\frac{3}{2}\right) =$ ☐

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

ID: Quick Check R.3.7

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7. Perform the indicated operation. Express your answer in lowest terms.

$$\frac{1}{21} - \frac{13}{21}$$

$\frac{1}{21} - \frac{13}{21} =$ ☐
(Type an integer or a fraction in lowest terms.)

Answer: $-\frac{4}{7}$

ID: Quick Check R.3.9

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

$$\frac{1}{6}+\frac{4}{5}$$

$\frac{1}{6}+\frac{4}{5}=$ ☐ (Type an integer or a simplified fraction.)

Answer: $\frac{29}{30}$

ID: Quick Check R.3.12

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9. Multiply the rational numbers. Express the product as a rational number in lowest terms.

$$\frac{3}{4}\cdot\frac{28}{9}$$

$\frac{3}{4}\cdot\frac{28}{9}=$ ☐
(Simplify your answer. Type an integer or a fraction.)

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

ID: R.3.21

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

$$\frac{13}{11}\div\frac{169}{121}$$

$\frac{13}{11}\div\frac{169}{121}=$ ☐
(Type an integer or a simplified fraction.)

Answer: $\frac{11}{13}$

ID: R.3.27

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

$$\frac{-\frac{21}{5}}{\frac{27}{10}}$$

$\frac{-\frac{21}{5}}{\frac{27}{10}} =$ ☐

(Type an integer or a simplified fraction.)

Answer: $-\frac{14}{9}$

ID: R.3.29

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

$$-\frac{3}{8}+\frac{1}{14}$$

$-\frac{3}{8}+\frac{1}{14} =$ ☐ (Type an integer or a simplified fraction.)

Answer: $-\frac{17}{56}$

ID: R.3.37

13. Evaluate the exponential expression.

$$(-5)^2$$

$(-5)^2 =$ ☐

Answer: 25

ID: Quick Check R.4.4

14. Evaluate.

$(-14)^3$

$(-14)^3 =$ ☐

Answer: -2744

ID: Quick Check R.4.5

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15. Evaluate.

-13^2

$-13^2 =$ ☐

Answer: -169

ID: Quick Check R.4.7

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16. Evaluate the expression.

$2 \cdot 4 + 40$

$2 \cdot 4 + 40 =$ ☐ (Simplify your answer.)

Answer: 48

ID: Quick Check R.4.9

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17. Evaluate the following expression.

$3 \cdot 4 + 8 \cdot 7$

$3 \cdot 4 + 8 \cdot 7 =$ ☐ (Type an integer or a decimal.)

Answer: 68

ID: Quick Check R.4.10

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18. Evaluate the following expression.

$1 - 5 + 9 \cdot 3 + 6$

$1 - 5 + 9 \cdot 3 + 6 =$ ☐ (Type an integer or a decimal.)

Answer: 29

ID: Quick Check R.4.16

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19. Evaluate the given expression.

$9 \cdot [8(7 - 4) - 8]$

$9 \cdot [8(7 - 4) - 8] =$ ☐

Answer: 144

ID: Quick Check R.4.17

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20. Evaluate the expression.

$8 + 7 \cdot 9$

$8 + 7 \cdot 9 =$ ☐
(Simplify your answer.)

Answer: 71

ID: Quick Check R.4.20

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21. Evaluate the expression.

$6 + [(10 - 3) \cdot 3]$

$6 + [(10 - 3) \cdot 3] =$ ☐ (Simplify your answer.)

Answer: 27

ID: Quick Check R.4.23

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22. Evaluate the expression.

$5 + 2 \cdot (10 - 3)$

$5 + 2 \cdot (10 - 3) =$ ☐

Answer: 19

ID: Quick Check R.4.24

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23. Simplify the following expression.

$-28+5\cdot5^2$

$-28+5\cdot5^2=$ ☐ (Simplify your answer.)

Answer: 97

ID: Quick Check R.4.25

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24. Evaluate the following expression.

$8\cdot2-5\cdot3^2$

$8\cdot2-5\cdot3^2=$ ☐ (Type an integer or a decimal.)

Answer: -29

ID: Quick Check R.4.26

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25. Evaluate the following expression.

$5\cdot(4-3)^2$

$5\cdot(4-3)^2=$ ☐ (Simplify your answer.)

Answer: 5

ID: Quick Check R.4.27

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26. Evaluate the expression.

$5+2\cdot(9-2)$

$5+2\cdot(9-2)=$ ☐

Answer: 19

ID: R.4.43

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27. Simplify.

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

$-5[6-(3-4)] =$ ☐

Answer: -35

ID: R.4.45

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28. Evaluate the expression.

$5 \cdot [3+3 \cdot (5+2)]$

$5 \cdot [3+3 \cdot (5+2)] =$ ☐ (Simplify your answer.)

Answer: 120

ID: R.4.53

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29. Evaluate the algebraic expression for the given value.

$x^2 - 4x + 7$, for $x = 6$

When $x = 6$, $x^2 - 4x + 7 =$ ☐.
(Simplify your answer.)

Answer: 19

ID: Quick Check R.5.11

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30. Simplify the following expression by combining like terms.

$6x + 5x$

$6x + 5x =$ ☐ (Type a simplified expression.)

Answer: $11x$

ID: Quick Check R.5.18

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31. Simplify the following expression by combining like terms.

$-4x-6x+7-6$

$-4x-6x+7-6=$ ☐

Answer: $-10x+1$

ID: Quick Check R.5.20

---

32. Simplify the algebraic expression by combining like terms.

$5x-9x-8y+13y$

$5x-9x-8y+13y=$ ☐ (Simplify your answer. Do not factor.)

Answer: $-4x+5y$

ID: Quick Check R.5.21

---

33. Simplify the following expression by combining like terms.

$2x-4-x+6-7x$

$2x-4-x+6-7x=$ ☐ (Type a simplified expression.)

Answer: $-6x+2$

ID: Quick Check R.5.24

---

34. Simplify the following expression by combining like terms.

$8(x-4)+x$

$8(x-4)+x=$ ☐ (Simplify your answer. Do not factor.)

Answer: $9x-32$

ID: Quick Check R.5.25

---

35. Simplify the following expression by combining like terms.

$2(z+6)-3z$

$2(z+6)-3z=$ ☐

Answer: $-z+12$

ID: Quick Check R.5.26

---

36. Evaluate the following expression for the value given.

$-3x^2 + 4x - 3;\ x = -5$

The expression $-3x^2 + 4x - 3$ evaluated when $x = -5$ is [ ]. (Type an integer.)

Answer: -98

ID: R.5.49

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37. Simplify the following expression by combining like terms.

$-5z - 3z + 7$

$-5z - 3z + 7 =$ [ ] (Simplify your answer. Do not factor.)

Answer: $-8z + 7$

ID: R.5.65

---

38. Simplify the following expression by combining like terms.

$9z + 5 - 11z - 6$

$9z + 5 - 11z - 6 =$ [ ] (Type a simplified expression.)

Answer: $-2z - 1$

ID: R.5.67

---

39. Simplify the following expression by combining like terms.

$2(z + 2) - 7z$

$2(z + 2) - 7z =$ [ ]

Answer: $-5z + 4$

ID: R.5.79

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40. Evaluate the principal square root.

$\sqrt{25}$

$\sqrt{25}$ = ☐
(Type an integer or a decimal.)

Answer: 5

ID: Quick Check R.6.4

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41. Evaluate the principal square root.

$\sqrt{\frac{16}{225}}$

$\sqrt{\frac{16}{225}}$ = ☐
(Type an integer or a fraction.)

Answer: $\frac{4}{15}$

ID: Quick Check R.6.6

---

42. Evaluate the expression.

$\sqrt{z^{22}}$

$\sqrt{z^{22}}$ = ☐

Answer: $|z^{11}|$

ID: Quick Check R.6.21

---

43. Simplify by factoring.

$\sqrt{45}$

$\sqrt{45}$ = ☐
(Type an exact answer, using radicals as needed.)

Answer: $3\sqrt{5}$

ID: Quick Check R.6.25

---

44. Evaluate the expression.

$\sqrt{\frac{1}{64}}$

$\sqrt{\frac{1}{64}} =$ ☐ (Type an integer or a fraction.)

Answer: $\frac{1}{8}$

ID: R.6.33

45. Simplify the expression.

$\sqrt{36x^2}$

$\sqrt{36x^2} =$ ☐
(Type an exact answer, using radicals as needed.)

Answer: $6|x|$

ID: R.6.99

46. Find the area A and circumference C of a circle of radius 13 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 169π

(1) $in.^2$

26π

(2) in.

ID: Quick Check R.7.8

47. Find the area A of a triangle with height 4 inches and base 4 inches.

A = [ ] (1) [ ]

(1) ○ inches
○ cubic inches
○ square inches

Answers 8

(1) square inches

ID: R.7.29

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48. Find the area A and circumference C of a circle of radius 4 meters.

A = [ ] (1) [ ]
(Type an exact answer in terms of π.)

C = [ ] (2) [ ]
(Type an exact answer in terms of π.)

(1) ○ cubic meters
○ square meters
○ meters

(2) ○ square meters
○ meters
○ cubic meters

Answers 16π

(1) square meters

8π

(2) meters

ID: R.7.31

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49. Simplify the following expression.

$m^{11} \cdot m^2$

$m^{11} \cdot m^2 =$ [ ] (Simplify your answer. Use positive exponents only.)

Answer: m^{13}

ID: Quick Check R.8.5

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50. Simplify the expression.

$9x^3 \cdot \left(-6x^9\right)$

$9x^3 \cdot \left(-6x^9\right) =$ [ ] (Simplify your answer. Use positive exponents only.)

Answer: $-54x^{12}$

ID: Quick Check R.8.6

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51. Simplify the following expression.

$\dfrac{x^{10}}{x^3}$

$\dfrac{x^{10}}{x^3} =$ [ ] (Simplify your answer. Type exponential notation with positive exponents.)

Answer: x^7

ID: Quick Check R.8.10

---

52. Simplify the expression.

$\dfrac{14a^9}{6a^6}$

$\dfrac{14a^9}{6a^6} =$ [ ] (Use positive exponents only. Simplify your answer.)

Answer: $\dfrac{7}{3}a^3$

ID: Quick Check R.8.11

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53. Simplify the following expression.

9^{-5}

$9^{-5} =$ [ ] (Type an integer or a simplified fraction.)

Answer: $\dfrac{1}{59{,}049}$

ID: Quick Check R.8.15

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54. Simplify the following expression.

$$\frac{1}{z^{-4}}$$

$\frac{1}{z^{-4}} =$ ☐ (Simplify your answer. Use positive exponents only.)

Answer: z^4

ID: Quick Check R.8.17

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55. Simplify the expression.

$$\left(5x^2y^4\right)\left(7x^3y^{-5}\right)$$

$\left(5x^2y^4\right)\left(7x^3y^{-5}\right) =$ ☐ (Simplify your answer. Use positive exponents only.)

Answer: $\frac{35x^5}{y}$

ID: Quick Check R.8.27

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56. Simplify the expression using the power rule.

$$\left(x^{14}\right)^2$$

$\left(x^{14}\right)^2 =$ ☐ (Type exponential notation with positive exponents.)

Answer: x^{28}

ID: Quick Check R.8.34

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57. Simplify the expression.

$$\left(x^3\right)^{-4}$$

$\left(x^3\right)^{-4} =$ ☐ (Simplify your answer. Use positive exponents only.)

Answer: $\frac{1}{x^{12}}$

ID: Quick Check R.8.35

---

58. Simplify the expression using the power rule.

$\left(x^{-8}\right)^{-2}$

$\left(x^{-8}\right)^{-2} =$ ☐
(Simplify your answer. Type exponential notation with positive exponents.)

Answer: x^{16}

ID: Quick Check R.8.36

---

59. Simplify the expression.

$(6x)^3$

$(6x)^3 =$ ☐ (Simplify your answer. Use positive exponents only.)

Answer: $216x^3$

ID: Quick Check R.8.37

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60. Simplify the following expression.

$\left(4m^3\right)^2$

$\left(4m^3\right)^2 =$ ☐ (Use positive exponents only.)

Answer: $16m^6$

ID: Quick Check R.8.39

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61. Simplify the expression.

$\left(\frac{x^9}{y^5}\right)^2$

$\left(\frac{x^9}{y^5}\right)^2 =$ ☐ (Simplify your answer. Use positive exponents only.)

Answer: $\frac{x^{18}}{y^{10}}$

ID: Quick Check R.8.43

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62. Simplify the expression.

$$\frac{15x^9y^9}{5x^3y^8}$$

$\frac{15x^9y^9}{5x^3y^8} =$ ☐

(Simplify your answer. Use positive exponents only. Use integers or fractions for any numbers in the expression.)

Answer: $3x^6y$

ID: R.8.67

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63. Simplify the expression.

$$(7x^6y)^2$$

$(7x^6y)^2 =$ ☐

(Simplify your answer. Use positive exponents only. Use integers or fractions for any numbers in the expression.)

Answer: $49x^{12}y^2$

ID: R.8.73

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64. Simplify the following polynomial. Express your answer as a single polynomial in standard form.

$$(2x^2 + 17x + 9) + (7x^2 - 7x - 2)$$

$(2x^2 + 17x + 9) + (7x^2 - 7x - 2) =$ ☐ (Simplify your answer.)

Answer: $9x^2 + 10x + 7$

ID: R.9.55

---

65. Simplify the following polynomial. Express your answer as a single polynomial in standard form.

$$(12x^2 + 10x + 7) - (4x^2 + 5x + 3)$$

$(12x^2 + 10x + 7) - (4x^2 + 5x + 3) =$ ☐ (Simplify your answer.)

Answer: $8x^2 + 5x + 4$

ID: R.9.61

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66. Find the product.

$(3x^3y)(-6x^2y^3)$

$(3x^3y)(-6x^2y^3) =$ ☐ (Simplify your answer.)

Answer: $-18x^5y^4$

ID: Quick Check R.10.2

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67. Multiply and simplify the expressions.

$5x(x^2+3x+5)$

$5x(x^2+3x+5) =$ ☐ (Simplify your answer.)

Answer: $5x^3+15x^2+25x$

ID: Quick Check R.10.5

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68. Find the product.

$-4a^2b(8a^3+4ab-b^5)$

$-4a^2b(8a^3+4ab-b^5) =$ ☐ (Simplify your answer.)

Answer: $-32a^5b-16a^3b^2+4a^2b^6$

ID: Quick Check R.10.6

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

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

$(6x+5)(6x-5) =$ ☐

Answer: $36x^2-25$

ID: Quick Check R.10.16

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

$(x-7)^2$

$(x-7)^2 =$ ☐

Answer: $x^2 - 14x + 49$

ID: Quick Check R.10.21

---

71. Find the product.

$(x+6)(x-4)$

$(x+6)(x-4) =$ ☐ (Simplify your answer.)

Answer: $x^2 + 2x - 24$

ID: R.10.37

---

72. Use the FOIL method to find the product.

$(2x+5)(5x-1)$

$(2x+5)(5x-1) =$ ☐ (Simplify your answer.)

Answer: $10x^2 + 23x - 5$

ID: R.10.39

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73. Find the product of the polynomials.

$(x+7)\left(x^2+5x+3\right)$

$(x+7)\left(x^2+5x+3\right) =$ ☐ (Simplify your answer.)

Answer: $x^3 + 12x^2 + 38x + 21$

ID: R.10.49

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74. Find the product of the polynomials.

$(3x^2 + 5x + 5)(4x + 3)$

$(3x^2 + 5x + 5)(4x + 3) =$ ☐

Answer: $12x^3 + 29x^2 + 35x + 15$

ID: R.10.53

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75. Find the product.

$(b - 1)(b - 2)(b - 4)$

$(b - 1)(b - 2)(b - 4) =$ ☐

Answer: $b^3 - 7b^2 + 14b - 8$

ID: R.10.61

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76. Simplify the expression.

$(y + 2)^3$

$(y + 2)^3 =$ ☐

Answer: $y^3 + 6y^2 + 12y + 8$

ID: R.10.93

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77. Simplify the expression.

$(7x - 3y + 2)(3x - 2y + 5)$

$(7x - 3y + 2)(3x - 2y + 5) =$ ☐

Answer: $21x^2 - 23xy + 41x + 6y^2 - 19y + 10$

ID: R.10.95

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78. Solve the following equation and verify your solution.

$-7x-3=18$

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 { **−3** } .(Simplify your answer.)

ID: Quick Check PF.1.9

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79. Solve the following equation.

$8y+3=7$

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 { $\frac{1}{2}$ } . (Type an integer or a simplified fraction.)

ID: Quick Check PF.1.10

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80. Solve the following linear equation.

$6(x-3)=30$

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 { **8** } . (Type an integer or a simplified fraction.)

ID: Quick Check PF.1.14

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

$-2(x-2)-2=4(x+3)+20$

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 { **−5** }. (Simplify your answer.)

ID: Quick Check PF.1.15

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82. Solve the following linear equation.

$$\frac{7y}{3}+\frac{y}{12}=\frac{29}{4}$$

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 { **3** }. (Type an integer or a simplified fraction.)

ID: Quick Check PF.1.19

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83. Solve the formula for the given variable.

$B = Lqx$ for L

$L =$ [ ] (Simplify your answer.)

Answer: $\frac{B}{qx}$

ID: Quick Check PF.1.33

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84. Solve for the indicated variable.

$Dx + Hy = M$, for x

$x =$ ☐ (Simplify your answer.)

Answer: $\frac{M - Hy}{D}$

ID: Quick Check PF.1.34

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85. Solve the formula for the specified variable.

$b = nu$ for n

$n =$ ☐

Answer: $\frac{b}{u}$

ID: PF.1.79

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86. Solve for y.

$4x + y = 12$

$y =$ ☐

Answer: $-4x + 12$

ID: PF.1.87

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87. Solve the equation for y.

$3x + 2y = 13$

$y =$ ☐ (Simplify your answer.)

Answer: $-\frac{3}{2}x + \frac{13}{2}$

ID: PF.1.89

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88. Find the number a such that the solution set of $ax + 6 = 36$ is $\{-5\}$.

$a =$ ☐
(Type an integer or a fraction.)

Answer: -6

ID: PF.1.111

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89. Find the GCF for the given list.

40x, 18

The GCF is ☐.

Answer: 2

ID: Quick Check PF.2.6

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90. Factor the following polynomial.

$x^2 + 17x + 72$

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

- **A.** $x^2 + 17x + 72 =$ ☐ (Type your answer in factored form.)
- **B.** The polynomial is prime.

Answer: A. $x^2 + 17x + 72 =$ **(x + 9)(x + 8)** (Type your answer in factored form.)

ID: Quick Check PF.3.4

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91. Factor the polynomial.

$x^2 - 17x + 72$

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.3.6

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92. 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

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93. Factor the polynomial completely. If the polynomial cannot be factored, say it is prime.

$-3x^3 - 3x^2 + 60x$

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

- **A.** $-3x^3 - 3x^2 + 60x =$ _____ (Type your answer in factored form.)
- **B.** The polynomial $-3x^3 - 3x^2 + 60x$ is prime.

Answer: A. $-3x^3 - 3x^2 + 60x =$ **$-3x(x + 5)(x - 4)$** (Type your answer in factored form.)

ID: Quick Check PF.3.14

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94. Factor the polynomial completely. If the polynomial cannot be factored, say it is prime.

$-3p^2 - 3p + 36$

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

- **A.** $-3p^2 - 3p + 36 =$ _____ (Type your answer in factored form.)
- **B.** The polynomial $-3p^2 - 3p + 36$ is prime.

Answer: A. $-3p^2 - 3p + 36 =$ **$-3(p + 4)(p - 3)$** (Type your answer in factored form.)

ID: Quick Check PF.3.15

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95. Factor the difference of two squares.

$16x^2 - 121y^2$

$16x^2 - 121y^2 =$ ☐

Answer: $(4x + 11y)(4x - 11y)$

ID: Quick Check PF.3.25

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96. Solve the quadratic equation using the Square Root Property.

$16 = (x + 7)^2$

The solution set is {☐}.
(Simplify your answer. Use a comma to separate answers as needed. Type an exact answer, using radicals and i as needed)

Answer: $-3, -11$

ID: Quick Check PF.4.16

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97. Solve the equation by factoring.

$z^2 + 2z - 35 = 0$

What is the solution set?

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

Answer: $-7, 5$

ID: PF.4.31

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98. Solve the equation.

$n^2 - 13n = -36$

The solution set is {☐}.
(Simplify your answer. Type an integer or a fraction. Use a comma to separate answers as needed.)

Answer: 4,9

ID: PF.4.33

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99. Solve the equation.

$5x^3 + x^2 - 45x - 9 = 0$

The solution set is $\{\ \square\ \}$.
(Simplify your answer. Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

Answer: $-\frac{1}{5}, -3, 3$

ID: PF.4.39

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100. Find an equation for the line with the given properties. Express your answer using either the general form or the slope-intercept form of the equation of a line.

Slope $= -3$; containing the point $(-3, 6)$

The equation is $\square$.
(Type an equation. Simplify your answer.)

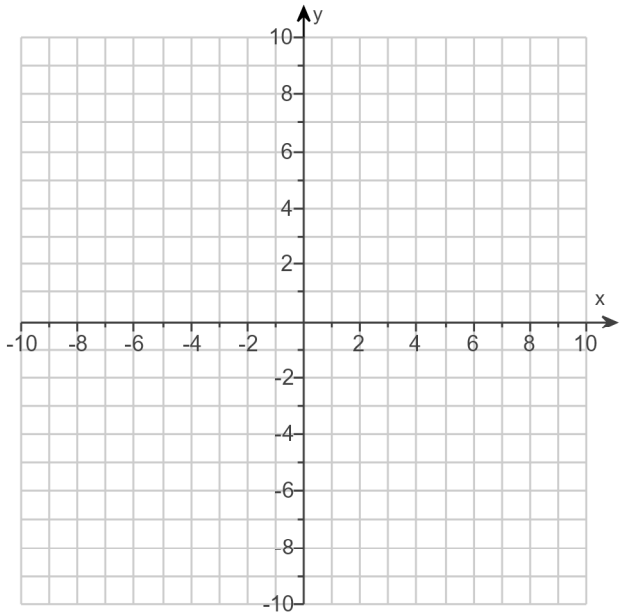
Answer: $y = -3x - 3$

ID: F.3.47

101.

Find the slope and y-intercept of the line. Graph the line.

$3x + y = 3$



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

- **A.** Slope = _____ (Type an integer or a simplified fraction.)
- **B.** The slope is undefined.

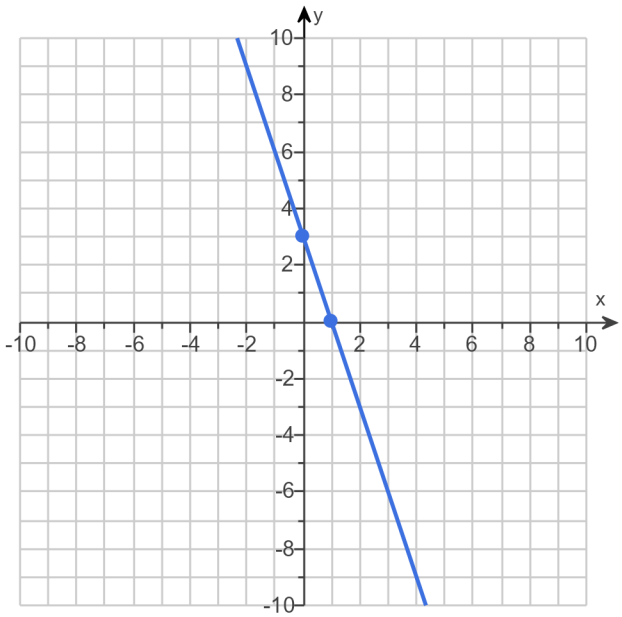
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The y-intercept is _____. (Type an integer or a simplified fraction.)
- **B.** The line $3x + y = 3$ does not have a y-intercept.

Use the graphing tool to graph the line. Use the slope and y-intercept when drawing the line.

Answers A. Slope = **−3** (Type an integer or a simplified fraction.)

A. The y-intercept is **3**. (Type an integer or a simplified fraction.)

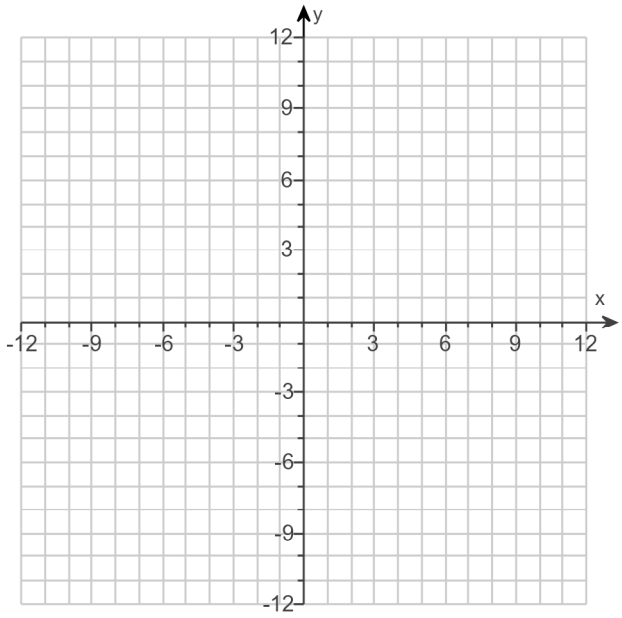


ID: F.3.83

102.

Find the slope and y-intercept of the line. Graph the line.

$x = 4$



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

- **A.** Slope = _____ (Type an integer or a simplified fraction.)
- **B.** The slope is undefined.

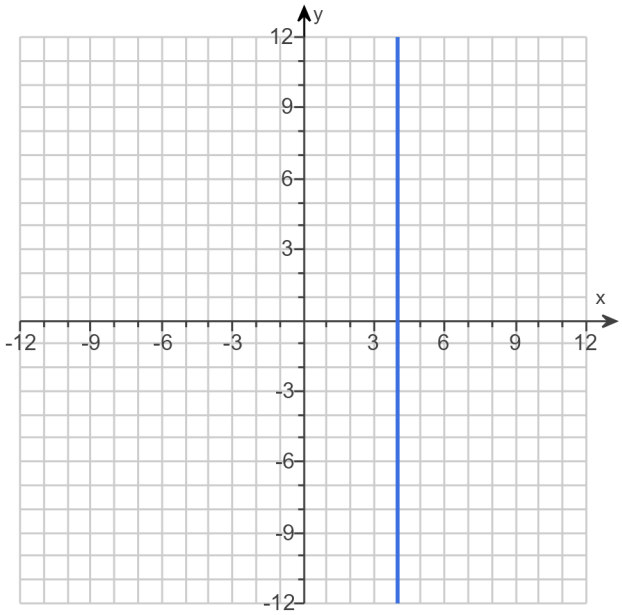
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** y-intercept = _____ (Type an integer or a simplified fraction.)
- **B.** The line $x = 4$ does not have a y-intercept.

Use the graphing tool to graph the line.

Answers B. The slope is undefined.

B. The line $x = 4$ does not have a y-intercept.

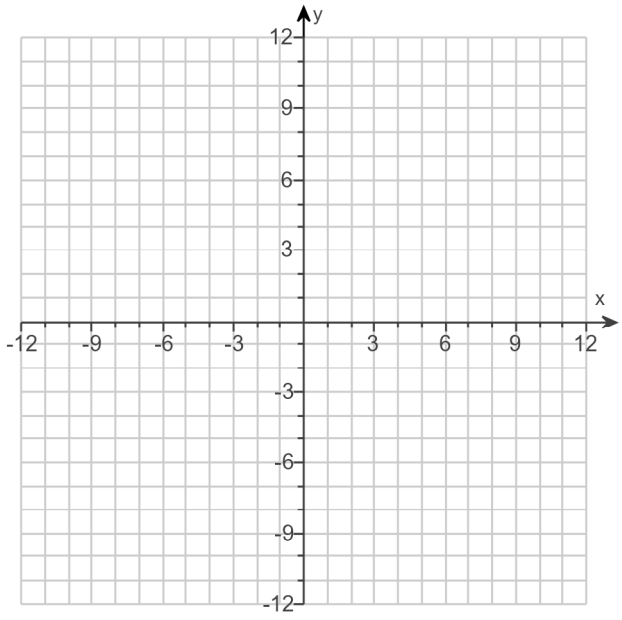


ID: F.3.85

103.

Find the slope and y-intercept of the line. Graph the line.

$y = 8$



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

- **A.** Slope = _____ (Type an integer or a simplified fraction.)
- **B.** The slope is undefined.

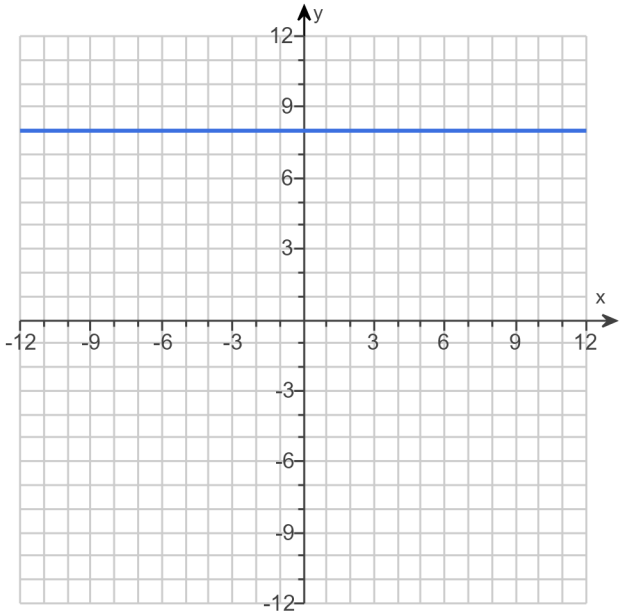
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** y-intercept = _____ (Type an integer or a simplified fraction.)
- **B.** The line $y = 8$ does not have a y-intercept.

Use the graphing tool to graph the equation. Use the slope and y-intercept when drawing the line.

Answers A. Slope = **0** (Type an integer or a simplified fraction.)

A. y-intercept = **8** (Type an integer or a simplified fraction.)

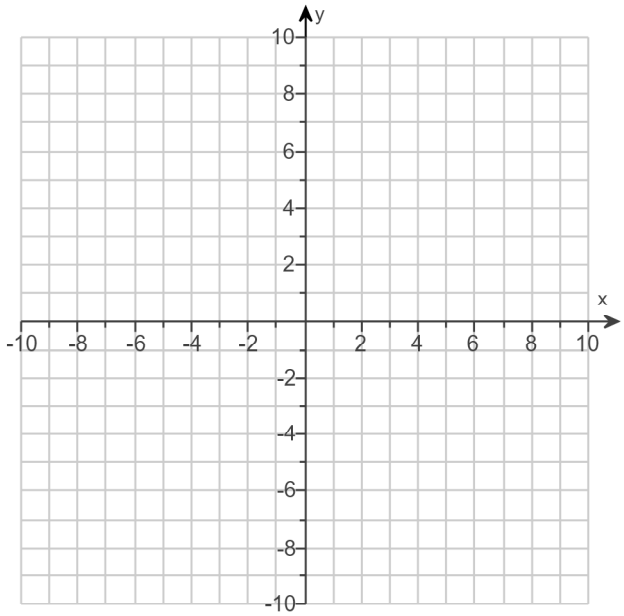


ID: F.3.87

104.

Using the given equation,
(a) find the intercepts of its graph and
(b) use the intercepts to graph the equation.

$4x + 3y = 12$



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

- **A.** The x-intercept is _____. (Type an integer or a simplified fraction.)
- **B.** There are no x-intercepts.

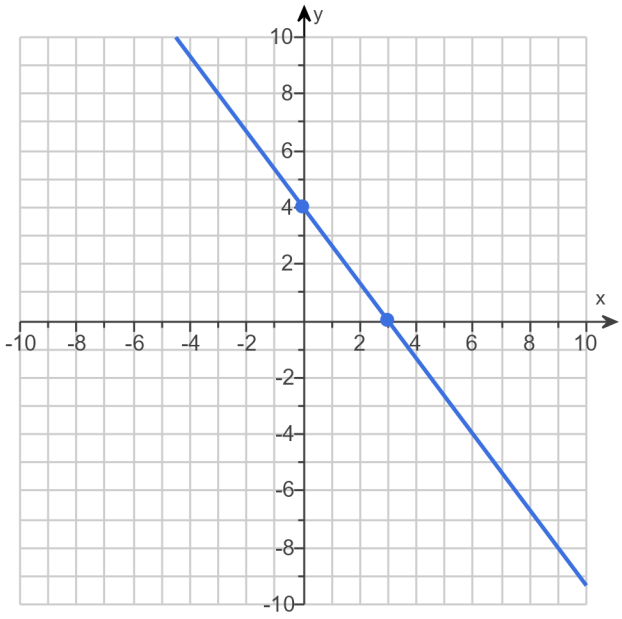
Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The y-intercept is _____. (Type an integer or a simplified fraction.)
- **B.** There are no y-intercepts.

(b) Use the graphing tool to graph the equation. Use the intercepts when drawing the line. If only one intercept exists, use that intercept and another point to graph the line.

Answers A. The x-intercept is **3**. (Type an integer or a simplified fraction.)

A. The y-intercept is **4**. (Type an integer or a simplified fraction.)

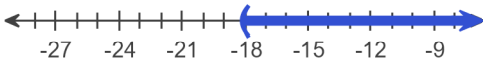


ID: F.3.93

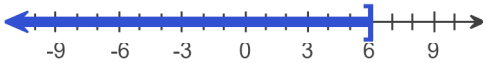
105. Solve the inequality $14 - 3x > -4$. Graph the solution set.

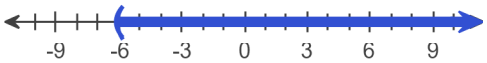
In set notation, the solution is $\{x \mid \square\}$. (Type an inequality.)

Graph the solution set. Choose the correct graph below.

A. 

B. 

C. 

D. 

Answers $x < 6$

B. 

ID: 1.1.4

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

(a) f(0) **(b)** f(1) **(c)** f(− 1) **(d)** f(− x)
(e) − f(x) **(f)** f(x + 1) **(g)** f(3x) **(h)** f(x + h)

(a) f(0) = [ ] (Simplify your answer.)

(b) f(1) = [ ] (Simplify your answer.)

(c) f(− 1) = [ ] (Simplify your answer.)

(d) f(− x) = [ ] (Simplify your answer.)

(e) − f(x) = [ ] (Simplify your answer.)

(f) f(x + 1) = [ ] (Simplify your answer.)

(g) f(3x) = [ ] (Simplify your answer.)

(h) f(x + h) = [ ] (Simplify your answer.)

Answers -2

5

-3

$3x^2 - 4x - 2$

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

$3x^2 + 10x + 5$

$27x^2 + 12x - 2$

$3x^2 + 6hx + 3h^2 + 4x + 4h - 2$

ID: 1.1.43

107. Find the domain of the function.

$f(x) = \sqrt{4x - 32}$

The domain is [ ]. (Type your answer in interval notation.)

Answer: $[8,\infty)$

ID: 1.1.59

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

$f(x) = 6x + 7$; $g(x) = 9x - 2$

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

(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 $15x + 5$

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

$-3x + 9$

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

$54x^2 + 51x - 14$

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

$\frac{6x+7}{9x-2}$

A. The domain is $\left\{x \mid \boxed{x \neq \frac{2}{9}}\right\}$.

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

65

0

304

$\frac{13}{7}$

ID: 1.1.67

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

$f(x) = x - 5;\ g(x) = 7x^2$

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

(e) Find $(f+g)(3)$.

$(f+g)(3) =$ ☐ (Type an integer or a simplified fraction.)

(f) Find $(f-g)(4)$.

$(f-g)(4) =$ ☐ (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 $7x^2 + x - 5$

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

$-7x^2 + x - 5$

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

$7x^3 - 35x^2$

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

$\frac{x-5}{7x^2}$

A. The domain is $\{x \mid$ **$x \neq 0$** $\}$.
(Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)

61

-113

-84

$-\frac{4}{7}$

ID: 1.1.69

110. Find the difference quotient of f; that is, find $\frac{f(x+h)-f(x)}{h}$, $h \neq 0$, for the following function. Be sure to simplify.

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

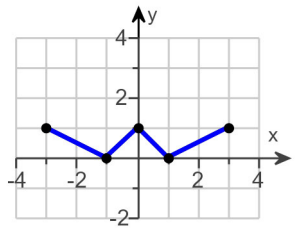
$\frac{f(x+h)-f(x)}{h} =$ [ ]

Answer: $2x + h - 4$

ID: 1.1.83

111. 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



(a) What are the intercepts?

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

(b) The domain is [ ].
(Type your answer in interval notation.)

The range is [ ].
(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 _____.
  (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 _____.
  (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)
- even.
- odd.
- neither odd nor even.

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

$[-3,3]$

$[0,1]$

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

A. The graph is decreasing on $\boxed{[-3,-1],[0,1]}$.
(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

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112. The function f is defined as follows.

$$f(x) = \begin{cases} 3 + x & \text{if } x < 0 \\ x^2 & \text{if } x \geq 0 \end{cases}$$

(a) Find the domain of the function.
(b) Locate any intercepts.
(c) Graph the function.
(d) Based on the graph, find the range.

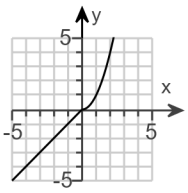
(a) The domain of the function f is [ ].
(Type your answer in interval notation.)

(b) Locate any intercepts. Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

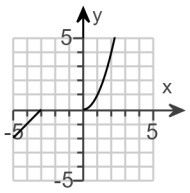
- **A.** The intercept(s) is/are _____.
  (Type an ordered pair. Use a comma to separate answers as needed.)
- **B.** There are no intercepts.

(c) Choose the correct graph of f(x) below.

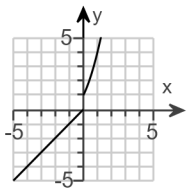
A.



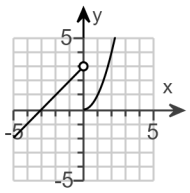
B.



C.



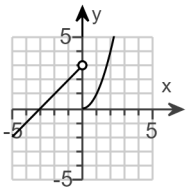
D.



(d) The range of the function f is [ ].
(Type your answer in interval notation.)

Answers $(-\infty, \infty)$

A. The intercept(s) is/are **$(-3,0),(0,0)$**.
(Type an ordered pair. Use a comma to separate answers as needed.)



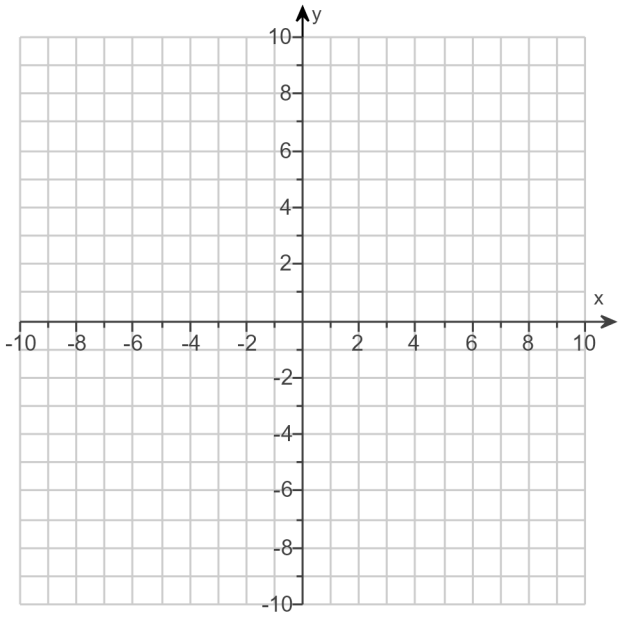
D.

$(-\infty, \infty)$

ID: 1.4.37

113.

(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.

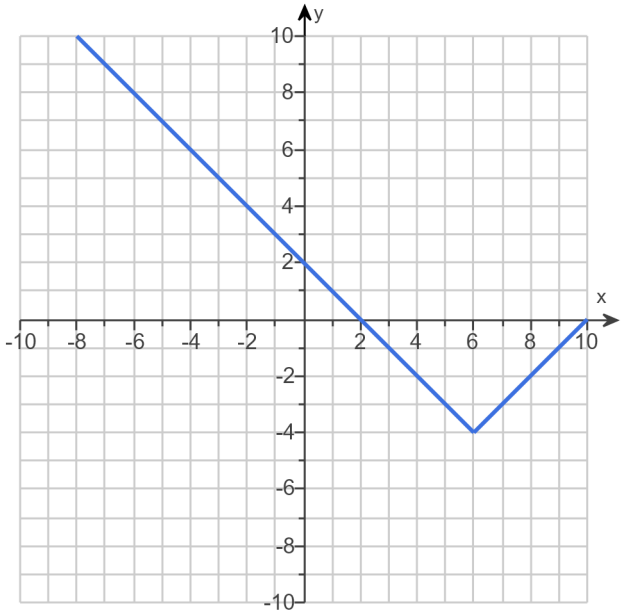


(a) Graph f(x).

(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



16

ID: 1.5.81

114. Factor the polynomial completely. If the polynomial cannot be factored, say it is prime. Be sure to look for a greatest common factor.

$-30s^2 - 28s + 16$

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

- **A.** $-30s^2 - 28s + 16 =$ _____
- **B.** The polynomial is prime.

Answer: A. $-30s^2 - 28s + 16 =$ **$-2(5s - 2)(3s + 4)$**

ID: P2.1.21

---

115. Factor the polynomial completely. If the polynomial cannot be factored, say it is prime. Be sure to look for a greatest common factor.

$45w^2 + 60w + 20$

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

- **A.** $45w^2 + 60w + 20 =$ _____
- **B.** The polynomial is prime.

Answer: A. $45w^2 + 60w + 20 =$ **$5(3w + 2)(3w + 2)$**

ID: P2.1.23

---

116. Factor the polynomial completely. If the polynomial cannot be factored, say it is prime. Be sure to look for a greatest common factor.

$2x^3 + 2x^2 - 60x$

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

- **A.** $2x^3 + 2x^2 - 60x =$ _____
- **B.** The polynomial is prime.

Answer: A. $2x^3 + 2x^2 - 60x =$ **$2x(x + 6)(x - 5)$**

ID: P2.1.25

---

117. Solve the following equation using the quadratic formula.

$3x^2 - 4x - 15 = 0$

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

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

ID: Quick Check P2.2.2

---

118. Solve the equation using the quadratic formula.

$x^2 - 6x - 40 = 0$

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

Answer: $-4, 10$

ID: P2.2.11

---

119. Find the slope of the line joining the points (1,2) and (5, − 3).

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 $-\frac{5}{4}$.(Simplify your answer.)

ID: 2.1.2

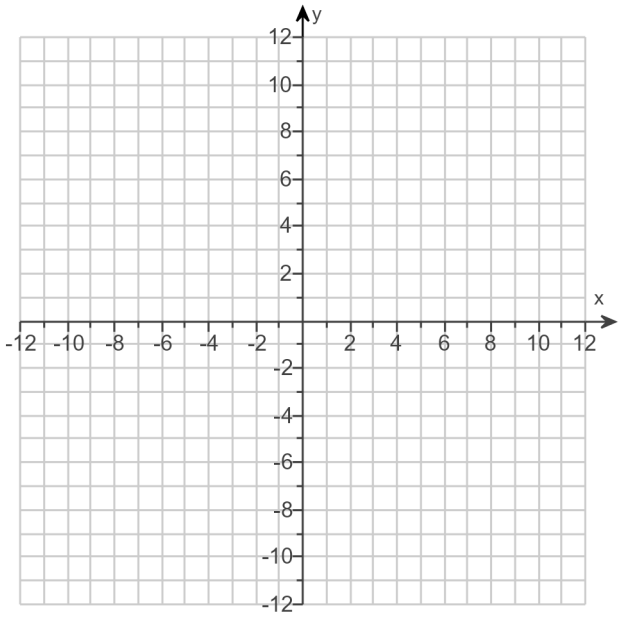
120.

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

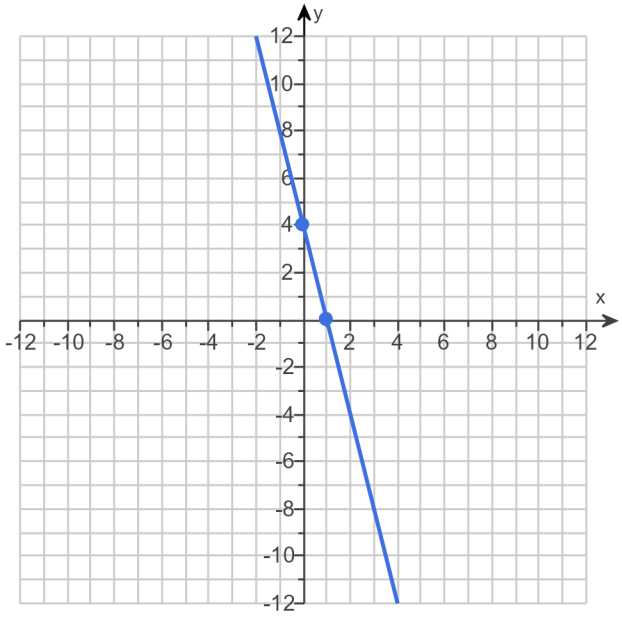
$g(x) = -4x + 4$

(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 1

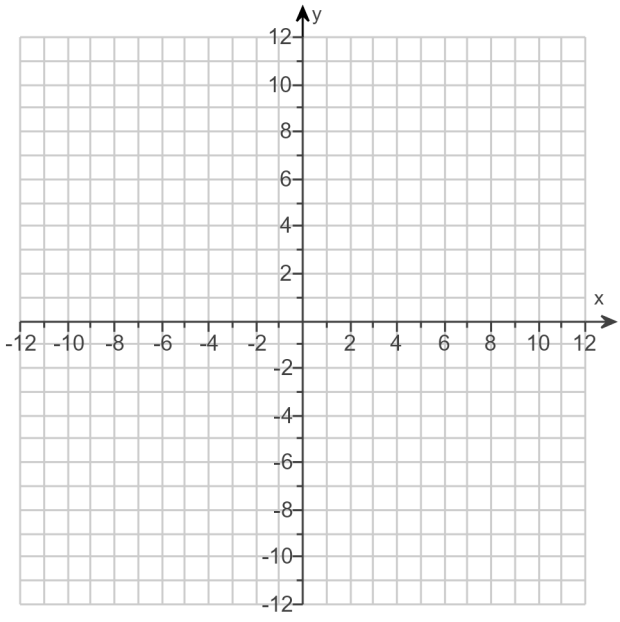


ID: 2.1.23

121.

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

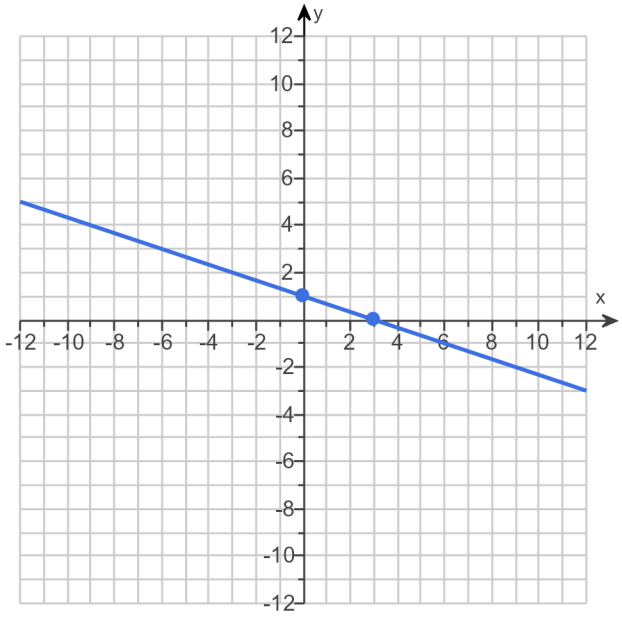
$$H(x) = -\frac{1}{3}x + 1$$



(a) The zero is [ ].
(Type an integer or a fraction.)

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

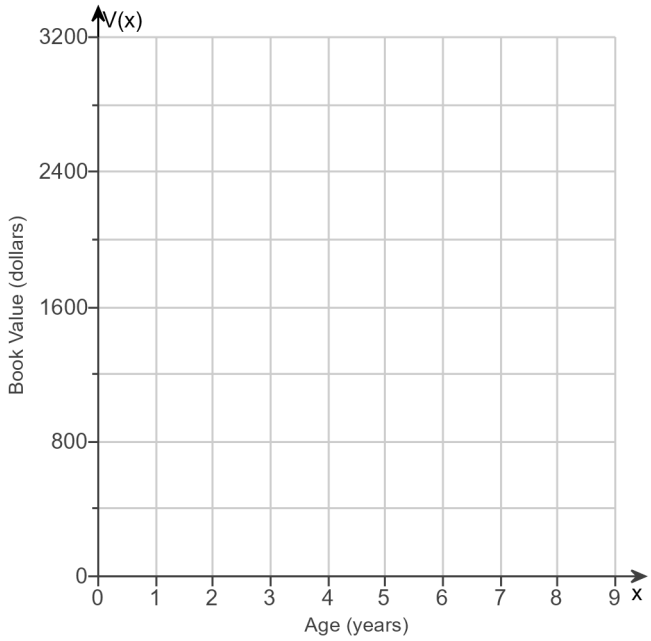
Answers 3



ID: 2.1.25

122.

Suppose that a company has just purchased a new computer for $2800. The company chooses to depreciate using the straight-line method for 7 years.



(a) Write a linear function that expresses the book value of the computer as a function of its age.

V(x) = ☐

(Type your answer in slope-intercept form.)

(b) What is the implied domain of the function found in part **(a)**?

☐

(Type your answer in interval notation.)

(c) Use the graphing tool to graph the linear equation.

(d) What is the book value of the computer after 3 years?

$☐

(Round to the nearest dollar as needed.)

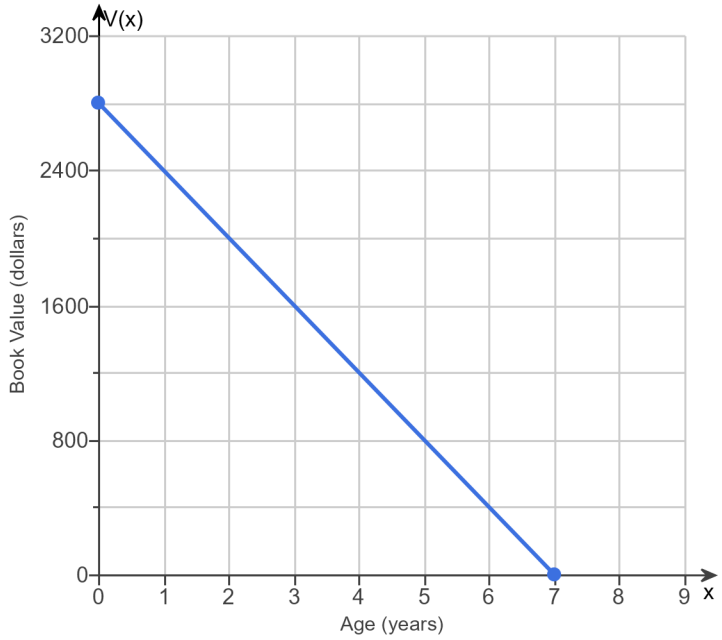
(e) When will the computer be worth $2000?

After ☐ year(s) the computer will be worth $2000.

(Type a whole number.)

Answers $-400x+2800$

$[0,7]$



1600

2

ID: 2.1.51

123. Solve the equation.

$(x - 1)(3x + 1) = 0$

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

Answer: $1, -\frac{1}{3}$

ID: 2.3.3

---

124. 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?

$f(x) = 8x^2 + 11 + 20x$

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.)

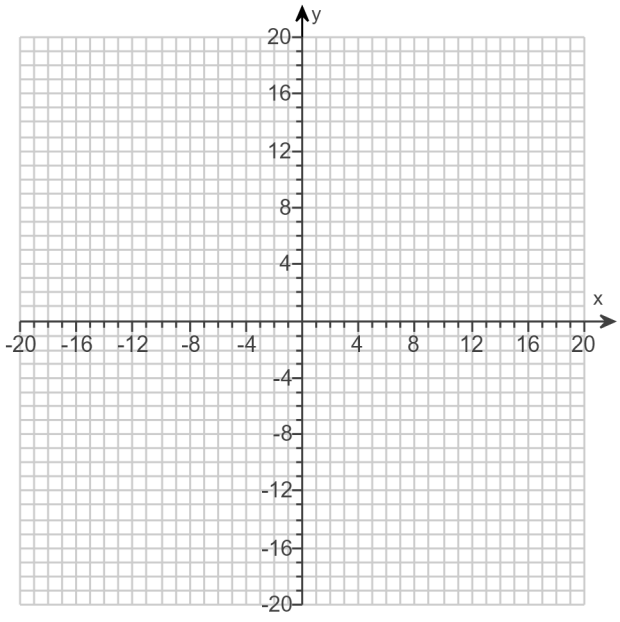
- **A.** The zeros and the x-intercepts are the same. They are _____.
- **B.** The zeros and the x-intercepts are different. The zeros are _____, the x-intercepts are _____.
- **C.** There is no real zero solution and no x-intercept.

Answer: A. The zeros and the x-intercepts are the same. They are $\frac{-5+\sqrt{3}}{4}, \frac{-5-\sqrt{3}}{4}$.

ID: 2.3.47

125.

For the quadratic function $f(x) = x^2 + 4x - 12$, 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.

The function is increasing on the interval [ ].
(Type your answer in interval notation.)

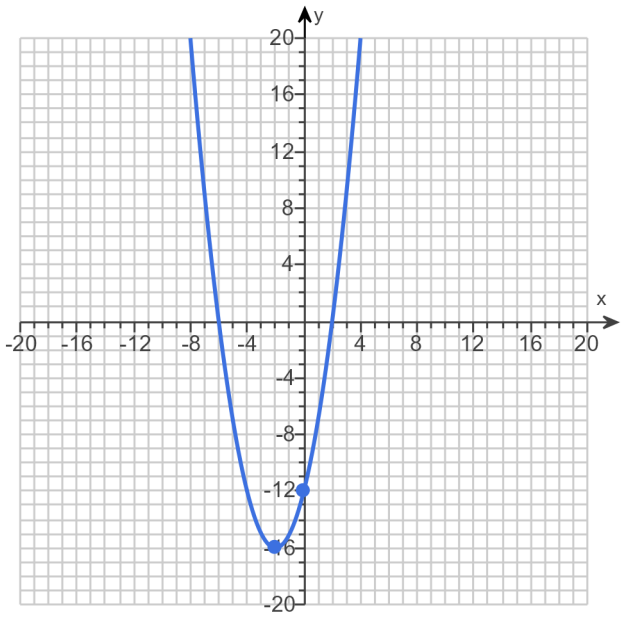
Answers up

$(-2,-16)$

$x=-2$

A. The x-intercept(s) is/are **−6,2**.
(Type an integer or a decimal. Use a comma to separate answers as needed.)

A. The y-intercept is **−12**.(Type an integer or a decimal.)



$(-\infty,\infty)$

$[-16,\infty)$

$[-2,\infty)$

$(-\infty,-2]$

ID: 2.4.37

---

126. Solve the equation in the complex number system.

$x^2-4x+13=0$

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

Answer: $2-3i, 2+3i$

ID: 3.3.2

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127. Write the expression as a radical and simplify, if possible.

$36^{1/2}$

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

- **A.** $36^{1/2} =$ _____ (Simplify your answer.)
- **B.** The root is not a real number.

Answer: A. $36^{1/2} =$ **6** (Simplify your answer.)

ID: Quick Check P4.1.2

---

128. Evaluate the expression, if possible.

$(-125)^{1/3}$

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

- **A.** $(-125)^{1/3} =$ _____ (Type an integer or a simplified fraction.)
- **B.** The answer is not a real number.

Answer: A. $(-125)^{1/3} =$ **−5** (Type an integer or a simplified fraction.)

ID: Quick Check P4.1.3

---

129. Evaluate the following expression, if possible.

$1296^{3/4}$

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

- **A.** $1296^{3/4} =$ _____
- **B.** The solution is not a real number.

Answer: A. $1296^{3/4} =$ **216**

ID: Quick Check P4.1.10

---

130. For $f(x) = 8x + 1$ and $g(x) = 3x$, find the following composite functions and state the domain of each.

(a) $f \circ g$ (b) $g \circ f$ (c) $f \circ f$ (d) $g \circ g$

(a) $(f \circ g)(x) =$ ☐ (Simplify your answer.)

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

- **A.** The domain of $f \circ g$ is $\{x \mid$ ☐ $\}$.
  (Type an inequality. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)
- **B.** The domain of $f \circ g$ is all real numbers.

(b) $(g \circ f)(x) =$ ☐ (Simplify your answer.)

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

- **A.** The domain of $g \circ f$ is $\{x \mid$ ☐ $\}$.
  (Type an inequality. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)
- **B.** The domain of $g \circ f$ is all real numbers.

(c) $(f \circ f)(x) =$ ☐ (Simplify your answer.)

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

- **A.** The domain of $f \circ f$ is $\{x \mid$ ☐ $\}$.
  (Type an inequality. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)
- **B.** The domain of $f \circ f$ is all real numbers.

(d) $(g \circ g)(x) =$ ☐ (Simplify your answer.)

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

- **A.** The domain of $g \circ g$ is $\{x \mid$ ☐ $\}$.
  (Type an inequality. Use integers or fractions for any numbers in the expression. Use a comma to separate answers as needed.)
- **B.** The domain of $g \circ g$ is all real numbers.

Answers $24x + 1$

B. The domain of $f \circ g$ is all real numbers.

$24x + 3$

B. The domain of $g \circ f$ is all real numbers.

$64x + 9$

B. The domain of $f \circ f$ is all real numbers.

$9x$

B. The domain of $g \circ g$ is all real numbers.

ID: 4.1.23

131. The percentage of patients P who have survived t years after initial diagnosis of a certain disease is modeled by the function $P(t) = 100(0.8)^t$.

(a) According to the model, what percent of patients survive 1 year after initial diagnosis?
(b) What percent of patients survive 4 years after initial diagnosis?
(c) Explain the meaning of the base 0.8 in the context of this problem.

(a) According to the model, [ ]% of patients survive 1 year after initial diagnosis.
(Type an integer or a decimal.)

(b) According to the model, [ ]% of patients survive 4 years after initial diagnosis.
(Type an integer or a decimal.)

(c) Explain the meaning of the base 0.8 in the context of this problem. Select the correct choice below and fill in the answer box to complete your choice.

- **A.** As each year passes, [ ] % of the total patients have survived.
- **B.** As each year passes, [ ] % of the previous survivors take the diagnosis.
- **C.** As each year passes, [ ] % of the previous year's survivors have survived.

Answers 80

40.96

C. As each year passes, [**80**] % of the previous year's survivors have survived.

ID: 4.3.109

132. Find the amount that results from the given investment.

$300 invested at 10% compounded quarterly after a period of 3 years

After 3 years, the investment results in $[ ].
(Round to the nearest cent as needed.)

Answer: 403.47

ID: 4.7.7

133. Solve the system of equations. If the system has no solution, say that it is inconsistent.

$$\begin{cases} 4x - 4y = -4 \\ 5x + y = 19 \end{cases}$$

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

- **A.** The solution of the system is x = _____ and y = _____.
  (Type an integers or simplified fractions.)
- **B.** There are infinitely many solutions. Using ordered pairs, the solution can be written as $\{(x,y) \mid x =$ _____, y any real number$\}$.
  (Simplify your answer. Type an expression using y as the variable as needed.)
- **C.** The system is inconsistent.

Answer: A. The solution of the system is x = **3** and y = **4**.
(Type an integers or simplified fractions.)

ID: 6.1.33

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134. Suppose that an urn contains 3 white marbles, 9 green marbles, and 8 black marbles. If one marble is selected, determine the probability that it is black.

The probability that the marble is black is _____.
(Type an integer or a simplified fraction.)

Answer: $\frac{2}{5}$

ID: 8.3.35

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135. Evaluate the expression if x = −3 and y = 4.

$x + 2y$

x + 2y = _____ (Simplify your answer.)

Answer: 5

ID: A.1.51

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136. Simplify the given expression.

$\sqrt[3]{216}$

$\sqrt[3]{216}$ = ☐

Answer: 6

ID: A.7.11

---

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

$\sqrt[5]{x^{35}y^{15}}$

$\sqrt[5]{x^{35}y^{15}}$ = ☐ (Type an exact answer, using radicals as needed.)

Answer: x^7y^3

ID: A.7.25

---

138. Simplify the given expression.

$4^{3/2}$

$4^{3/2}$ = ☐ (Type an integer or a simplified fraction.)

Answer: 8

ID: A.7.73

---

139. Simplify the expression. Express your answer so that only positive exponents occur. Assume that the variables are positive.

$x^{2/5}x^{3/4}x^{-1/2}$

$x^{2/5}x^{3/4}x^{-1/2}$ = ☐
(Use integers or fractions for any numbers in the expression.)

Answer: $x^{13/20}$

ID: A.7.85

---

140. Solve the equation.

$$\frac{1}{2}x = \frac{5}{6}$$

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

- **A.** The solution set is { } . (Use a comma to separate answers as needed.)
- **B.** There is no solution.

Answer: A. The solution set is $\left\{\frac{5}{3}\right\}$. (Use a comma to separate answers as needed.)

ID: A.8.13

---

141. Solve the equation.

$$6x - (4x + 4) = 4x - 18$$

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

- **A.** The solution set is { } . (Simplify your answer.)
- **B.** There is no solution.

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

ID: A.8.19

---

142. Solve the equation.

$$\frac{5}{3x-4} = \frac{2}{x+3}$$

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

- **A.** The solution set is { } . (Simplify your answer.)
- **B.** There is no solution.

Answer: A. The solution set is {23}. (Simplify your answer.)

ID: A.8.35

---

143. Find the real solutions of the equation.

$\sqrt{5x-9} = 9$

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

ID: A.8.47

144. Find the real solutions of the equation.

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

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

ID: A.8.53

145. Find the real solutions of the equation.

$2 + \sqrt{5x-4} = x$

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

- **A.** The solution set is { }. (Simplify your answer. Use a comma to separate answers as needed.)
- **B.** The solution is the empty set.

Answer: A. The solution set is {8}. (Simplify your answer. Use a comma to separate answers as needed.)

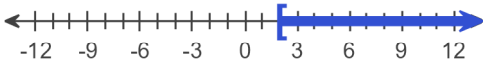
ID: A.8.55

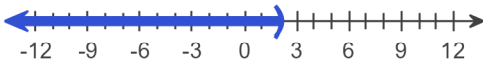
146. Solve the following inequality. Graph the solution set.

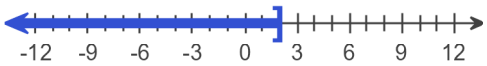
$5x - 3 > 7$

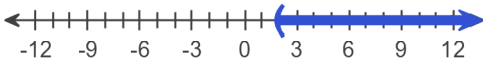
The solution is [ ].
(Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

Choose the graph of the inequality below.

A. 

B. 

C. 

D. 

Answers $(2,\infty)$

D. 

ID: A.10.63

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147. Write the given number in scientific notation.

989.3

989.3 = [ ]
(Use the multiplication symbol in the math palette as needed.)

Answer: 9.893×10^{2}

ID: AR4.1.73

---

148. Write the number in scientific notation.

0.000494

0.000494 = [ ]
(Use the multiplication symbol in the math palette as needed.)

Answer: 4.94×10^{-4}

ID: AR4.1.79

---

149. Write the number in decimal notation without the use of exponents.

7.45×10^{6}

$7.45 \times 10^{6} =$ [ ]

Answer: 7,450,000

ID: AR4.1.81

---

150. Write the given number as a decimal.

6.336×10^{-8}

$6.336 \times 10^{-8} =$ [ ]

Answer: 0.00000006336

ID: AR4.1.83