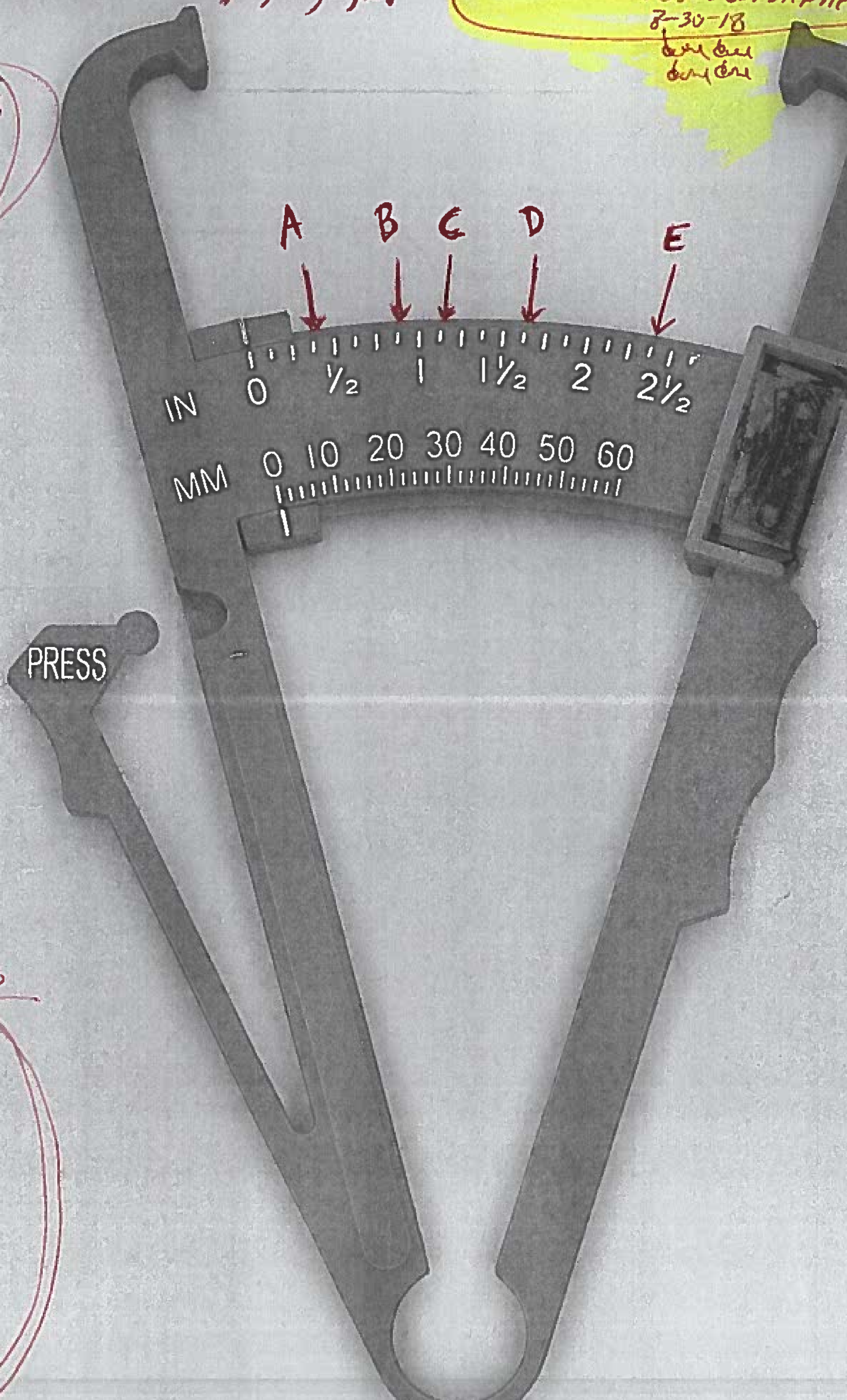
Find the values of A, B, C, D, E.

math0410149bbbbtesi stephew
8-30-18

Warm up

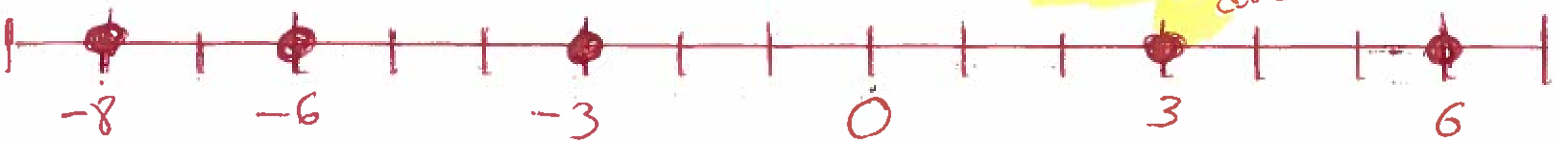


answers

A = 3/8
B = 7/8
C = 1 1/8
D = 1 5/8
E = 2 3/8

(1) 3, −3, 6, −6, −8

math0410149bbb3ts
8-30-18



② $2x-y$, $x=3$, $y=-8$

$2(3)-(-8)=$

$6+8=$

$14=$

PEMDAS

③ $4+6\cdot5-1y=$

$4+30-1y=$

$34-1y=$

$20=$

PEMDAS

④ $9\cdot6-7\cdot4+(-2y)=$

$9\cdot6-7\cdot4-2y=$

$54-7\cdot4-2y=$

$54-28-2y=$

$26-2y=$

$2=$

PEMDAS

5. $8(-11) \div [2(-8) - 3(-5)] =$

$8(-11) \div [-16 + 15] =$

$8(-11) \div [-1] =$

$-88 \div [-1] =$

$88 =$

PEMDAS

6. $x^2 - y, \quad x = -5, \quad y = 4$

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

$(-5)(-5) - (4) =$

$25 - 4 =$

$21 =$

PEMDAS

7. $-11, 8, 11, 0, -7, 15, -9$ Find average

$$\frac{(-11) + (8) + (11) + (0) + (-7) + (15) + (-9)}{7} =$$

$$\frac{7}{7} =$$

$1 =$

8. $d - 2 = -14$

$d - 2 + 2 = -14 + 2$

$d = -12$

Ck $d - 2 = -14$

$(-12) - 2 = -14$

$-12 - 2 = -14$

$-14 = -14$ Good

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9. $\frac{n}{4} = -5$

$4\left(\frac{n}{4}\right) = 4(-5)$

$n = -20$

10a $6x - 17x =$

$-11x =$

11. $-2(8z+6) =$

$-16z - 12 =$

PEMDAS

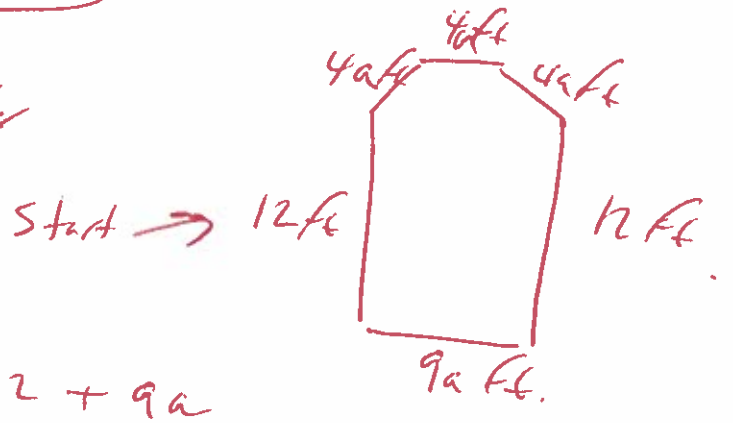
12. $5y - 3(y-1) + 6 =$

$5y - 3y + 3 + 6 =$

$2y + 9 =$

PEMDAS

13. Find Perimeter



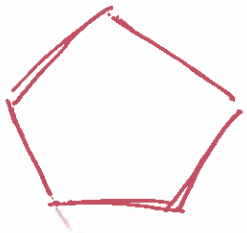
$P = 12 + 4a + 4a + 4a + 12 + 9a$

$P =$ (21a + 24) feet

14. Find Perimeter

$P = 5(-4x + 8)$

$P =$ (−20 + 40) inches



Each Side

$-4x + 8$

inches

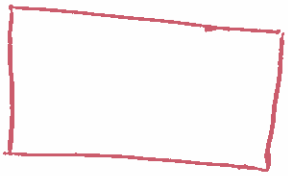
PEMDAS

15. Find area

$A = LW$

$A = (x-2)(37)$

$A = 37x - 74$ square kilometers



16. $A = LW$, $L = 54$ feet, $W = 40$ feet

$A = (54)(40)$

$A = 2160$ square feet

17. $P = 2L + 2W$, $L = 28$ feet, $W = 25$ feet

PEMDAS

$P = 2(28) + 2(25)$

$P = 56 + 50$

$P = 106$ feet

18. PEMDAS

$2(2x-3) = 5x$

$4x - 6 = 5x$

$4x - 6 + 6 = 5x + 6$

$4x = 5x + 6$

$4x - 5x = 5x + 6 - 5x$

$-1x = 6$

$\frac{-1x}{-1} = \frac{6}{-1}$

$x = -6$

19. $-7(x+8)-45=4-42$

$-7x-56-45=-38$

PEMDAS

$-7x-101=-38$

$-7x-101+101=-38+101$

$-7x=63$

$\frac{-7x}{-7}=\frac{63}{-7}$

$x=-9$

20. $\frac{x}{-3}=2^2-|-2|-(-8)$

PEMDAS

$\frac{x}{-3}=(2)(2)-(2)-(-8)$

$\frac{x}{-3}=4-2+8$

$\frac{x}{-3}=2+8$

$\frac{x}{-3}=10$

$-3\left(\frac{x}{-3}\right)=-3(10)$

$x=-30$

21. $3x - 7 = 4x + 2$

$3x - 7 + 7 = 4x + 2 + 7$

$3x = 4x + 9$

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

$-1x = 9$

$\frac{-1x}{-1} = \frac{9}{-1}$

$x = -9$

22. $-13x - 20 = -12x + 50$

$-13x - 20 + 20 = -12x + 50 + 20$

$-13x = -12x + 70$

$-13x + 12x = -12x + 70 + 12x$

$-1x = 70$

$\frac{-1x}{-1} = \frac{70}{-1}$

$x = -70$

23

$4(y-3) = y-12$

PEMDAS

$4y-12 = y-12$

$4y-12\cancel{+12} = y-\cancel{12}+\cancel{12}$

$4y = y$

$4y = 1y$

$4y-1y = 1y-1y$

$3y = 0$

$\frac{3y}{3} = \frac{0}{3}$

$y = 0$

24

$2t-1 = 3(t+6)$

PEMDAS

$2t-1 = 3t+18$

$2t-\cancel{1}\cancel{+1} = 3t+18+1$

$2t = 3t+19$

$2t-3t = 3t+19-3t$

$-1t = 19$

$\frac{-1t}{-1} = \frac{19}{-1}$

$t = -19$

25. $5(3c-1)-5=11c+2$

$15c-5-5=11c+2$

$15c-10=11c+2$

$15c-10+10=11c+2+10$

$15c=11c+12$

$15c-11c=11c+12-11c$

$4c=12$

$\frac{4c}{4}=\frac{12}{4}$

$c=3$

PEMDAS

26. $5n+30=35$

$5n+30-30=35-30$

$5n=5$

$\frac{5n}{5}=\frac{5}{5}$

$n=1$

21.

$14 + 6t = 7(t+2)$

PEMDAS

$14 + 6t = 7t + 14$

$14 + 6t - 14 = 7t + 14 - 14$

$6t = 7t$

$6t - 7t = 7t - 7t$

$-1t = 0$

$\frac{-1t}{-1} = \frac{0}{-1}$

$t = 0$

(28) During the women's basketball championship game, team A scored 5 more points than team B. Together both teams scored a total of 163 points. How many points did the Champion team A score during this game?

let A = points scored by team A
B = point scored by team B

$$A + B = 163$$
$$A - B = 5$$

$$2A + 0 = 168$$
$$2A = 168$$
$$\frac{2A}{2} = \frac{168}{2}$$
$$A = 84$$

Champion

Subs

$$A + B = 163$$
$$84 + B = 163$$
$$84 + B - 84 = 163 - 84$$
$$B = 79$$

Loser team

29) $-\frac{2}{7} \cdot \frac{3}{8}$ Primi 2, 3, 5, 7

$$\frac{-1(2)}{7} \cdot \frac{3}{(2)(2)(2)} =$$

$$\frac{-1(2)}{7} \cdot \frac{3}{(2)(2)(2)} =$$

$$\frac{-3}{28} =$$

30) $\frac{7}{15} \cdot \frac{1}{3} \cdot \frac{5}{21}$ Primi 2, 3, 5, 7...

$$\frac{7}{(3)(5)} \cdot \frac{1}{3} \cdot \frac{5}{(3)(7)} =$$

$$\frac{(7)}{(3)(5)} \cdot \frac{1}{3} \cdot \frac{5}{(3)(7)} =$$

$$\frac{1}{27} =$$

31) $\left(\frac{-2}{5}\right)^2 =$

$\left(\frac{-2}{5}\right)\left(\frac{-2}{5}\right) =$ rewrite

$\frac{4}{25} =$

32) $\frac{3}{4} \div \frac{7}{8} =$ Prime 2, 3, 5, 7...

$\frac{3}{4} \cdot \frac{8}{7} =$

2|4 2|2 1

2|8 2|4 2|2 1

$\frac{3}{(2)(2)} \cdot \frac{(2)(2)(2)}{7} =$

$\frac{(3)}{(2)(2)} \cdot \frac{(2)(2)(2)}{(7)} =$

$\frac{6}{7} =$

33. $\frac{49x^2}{20y} \div \frac{35x}{8y} =$ Prime 2, 3, 5, 7

$\frac{49x^2}{20y} \cdot \frac{8y}{35x} =$ rewrite

$\frac{(7)(7)x^2}{(2)(2)(5)y} \cdot \frac{(2)(2)(2)y}{(5)(7)x} =$

$\frac{(7)(7)xx}{(2)(2)(5)y} \cdot \frac{(2)(2)(2)y}{(5)(7)x} =$

$\frac{14x}{25} =$

34. Find $\frac{3}{8}$ of 56 Prime 2, 3, 5, 7

$\frac{3}{8}(56) =$

$\frac{3}{(2)(2)(2)} \cdot \frac{(2)(2)(2)(7)}{1} =$

$\frac{3}{(2)(2)(2)} \cdot \frac{(2)(2)(2)(7)}{1} =$

$\frac{3 \cdot 7}{1} =$

$\frac{21}{1} =$ 21

35. $\frac{1}{15} + \frac{8}{15} =$

$\frac{1+8}{15} =$

$\frac{9}{15} =$

$\frac{(3)(3)}{(3)(5)} =$

$\frac{(3)(3)}{(3)(5)} =$

$\frac{3}{5} =$

Prime 2, 3, 5, 7...

3 | 9 3 | 15

3 | 3 5 | 5

1

36. $\frac{1}{3} + \frac{2}{9} =$

$\frac{1}{3}\left(\frac{3}{3}\right) + \frac{2}{9} =$

$\frac{3}{9} + \frac{2}{9} =$

$\frac{3+2}{9} =$

$\frac{5}{9} =$

Prime 2, 3, 5, 7...

3 | 3 3 | 9

1 3 | 3

1

$3 = 3$

$9 = 3 \cdot 3$

LCD = 3, 3

$= 9$

37 $\frac{1}{6} - \frac{4}{9} =$

Prime 2, 3, 5, 7

$2 \overline{)6}$ 3

$3 \overline{)3}$ 1

$3 \overline{)9}$

$3 \overline{)3}$

1

$6 = 2 \cdot 3$

$9 = 3 \cdot 3$

LCD $= 2 \cdot 3 \cdot 3$

$= 18$

$\frac{1}{6}\left(\frac{3}{3}\right) - \frac{4}{9}\left(\frac{2}{2}\right) =$

$\frac{3}{18} - \frac{8}{18} =$

$\frac{3-8}{18} =$

$\frac{-5}{18} =$

38 $\frac{\frac{5}{7}}{\frac{5}{9}} =$

$\frac{5}{9} \cdot \frac{9}{5} =$ reciprocal

$\frac{5}{7} \cdot \frac{9}{5} =$

$\frac{9}{7} =$

39 $-35 = \frac{5}{7}x$

Prime 2, 3, 5, 7...

$5\overline{)35}$

$7\overline{)7}$

1

$\frac{7}{5}(-35) = \frac{7}{5}\left(\frac{5x}{7}\right)$

$\frac{7}{5}\left(\frac{-35}{1}\right) = x$

$\frac{7}{5}\left(\frac{-1(5)(7)}{1}\right) = x$

$-49 = x$

40 $\frac{x}{4} = \frac{x}{7} - 3$

LCD = 28 Prime 2, 3, 5, 7

$2\overline{)4}$ $7\overline{)7}$

$2\overline{)2}$ 1

1

LCD = 2 · 2 · 7 = 28

$\frac{x}{4} = \frac{x}{7} - \frac{3}{1}$

$\frac{x}{4}(28) = \frac{x}{7}(28) - \frac{3}{1}(28)$

$x(7) = x(4) - 3(28)$

$7x = 4x - 84$

$7x - 4x = 4x - 84 - 4x$

$3x = -84$

$\frac{3x}{3} = \frac{-84}{3}$

$x = -28$

41. $\frac{1}{4} - \frac{z}{7} = \frac{9}{28}$ LCD = 28

Prime 2, 3, 5, 7

2|4 7|7 2|28

2|2 , 2|14

1 7|7

1

$4 = 2 \cdot 2$

$7 = 7$

$28 = 2 \cdot 2 \cdot 7$

LCD = $2 \cdot 2 \cdot 7 = 28$

$\frac{1}{4}(28) - \frac{z}{7}(28) = \frac{9}{28}(28)$ multiply

$1(7) - z(4) = 9(1)$ divide

$7 - 4z = 9$

$7 - 4z - 7 = 9 - 7$

$-4z = 2$

$\frac{-4z}{-4} = \frac{2}{-4}$

$z = -\frac{2}{4}$

$z = \frac{-1(2)}{2(2)}$

$z = -\frac{1}{2}$

42. $\frac{x}{2} + 3 = \frac{1}{2}$ LCD = 2

$\frac{x}{2} + \frac{3}{1} = \frac{1}{2}$

$\frac{x}{2}(2) + \frac{3}{1}(2) = \frac{1}{2}(2)$ mult

$x(1) + 3(2) = 1(1)$ divide

$x + 6 = 1$

$x + 6 - 6 = 1 - 6$

$x = -5$

43. $\frac{m}{5} + 3 = \frac{m}{4} + 6$ LCD = 20

$\frac{m}{5} + \frac{3}{1} = \frac{m}{4} + \frac{6}{1}$

$\frac{m}{5}(20) + \frac{3}{1}(20) = \frac{m}{4}(20) + \frac{6}{1}(20)$ mult

$m(4) + 3(20) = m(5) + 6(20)$ divide

$4m + 60 = 5m + 120$

$4m + 60 - 60 = 5m + 120 - 60$

$4m = 5m + 60$

$4m - 5m = 5m + 60 - 5m$

$-1m = 60$

$\frac{-1m}{-1} = \frac{60}{-1}$

$m = -60$

44 $-5.323 \times 1000 =$

$-5323. =$ Move decimal right 3 times

45 $\frac{97.649}{100} =$

$0.97649 =$ Move decimal left 2 times

46 $2.1x - 30 = 1.1x + 5$

$2.1x - 30 + 30 = 1.1x + 5 + 30$

$2.1x = 1.1x + 35$

$2.1x - 1.1x = 1.1x + 35 - 1.1x$

$1x = 35$

$x = 35$

47 $\frac{14}{126} = \frac{22}{x}$

$14(x) = 126(22)$ cross mult

$14x = 2772$

$\frac{14x}{14} = \frac{2772}{14}$

$x = 198$

48 Write the fraction as a percent

$\frac{1}{10}$

$\frac{1}{10} = \frac{x}{100}$

$1(100) = 10(x)$ cross mult

$100 = 10x$

$\frac{100}{10} = \frac{10x}{10}$

$10 = x$

OR

$10\% = x$

49 32% written as a decimal

.32 =

32% written as a fraction simplified

$\frac{32}{100} =$ Primes 2, 3, 5, 7

$\frac{(2)(2)(2)(2)(2)}{(2)(2)(5)(5)} =$

2 | 32	2 | 100
2 | 16	2 | 50
2 | 8	5 | 25
2 | 4	5 | 5
2 | 2	1
1	

$\frac{8}{25} =$

50 $A = P - PD$, $P = \$819$, $D = 30\% = .30$

$A = \$819 - \$819(.30)$

$A = \$819 - \$245.70$ ← discount

$A = \$573.30$ ← sale price

51. $A = P + PRT$, $P = \$54{,}000$, $R = 11.5\% = .115$, $T = 8$

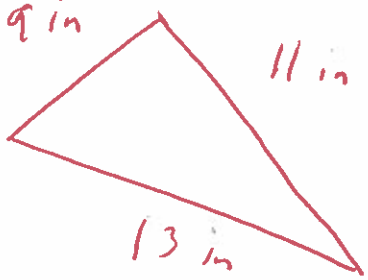
$A = \$54{,}000 + \$54{,}000(.115)(8)$

$A = \$54{,}000 + \$54{,}000(.92)$

$A = \$54{,}000 + \$49{,}680$ ← interest paid on loan

$A = \$103{,}680$ ← ~~Total~~ amount paid

52. find perimeter



$P = 9 + 11 + 13$

$P = 33$ inches

53. find area

$A = LW$

$A = (4.5)(4)$

$A = 18$ Square meters

54) Find area

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

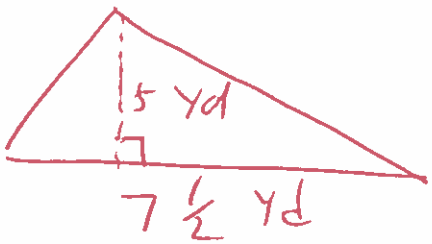
$A = \frac{1}{2}(7\frac{1}{2})(5)$

$A = \frac{1}{2}(\frac{15}{2})(5)$

$A = \frac{1}{2}(\frac{15}{2})(\frac{5}{1})$

$A = \frac{75}{4}$

$A = 18\frac{3}{4}$ Square yards



$7\frac{1}{2} = \frac{2(3)+1}{2} = \frac{14+1}{2} = \frac{15}{2}$

$4\overline{)75}$ $18\ 3/4$

$-(4)$

35

$-(32)$

3 rem

55) Find area

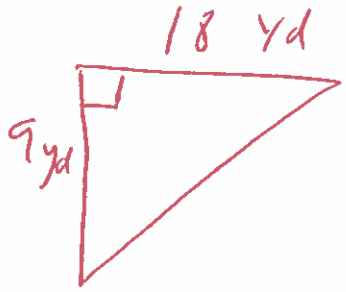
$A = \frac{1}{2}BA$

$A = \frac{1}{2}(18)(9)$

$A = \frac{1}{2}(162)$

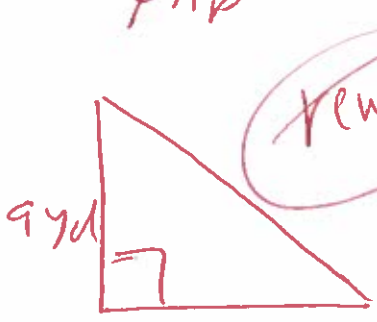
$A = \frac{162}{2}$

$A = 81$ Square Yards



flip

rewrite



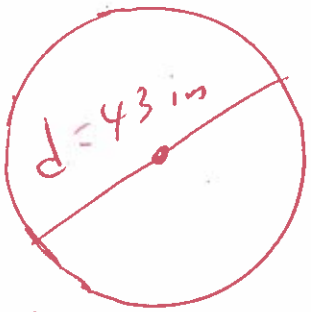
56) $A = \pi r^2$ $r = 21.5$ in

$A = \pi (21.5)^2$

$A = \pi (21.5)(21.5)$

$A = \pi (462.25)$

$A = 462.25\pi$ Exact Square inches



$r = \frac{1}{2}d = \frac{1}{2}(43) = \frac{43}{2} = 21.5$

$r = 21.5$

$A = \pi r^2$ $\pi = 3.14$, $r = 21.5$ in

$A = 3.14(21.5)^2$

$A = 3.14(21.5)(21.5)$

$A = 3.14(462.25)$

$A = 1451.465$ Approx Square inches

(57) $A = \pi r^2$ $\quad r = 9$

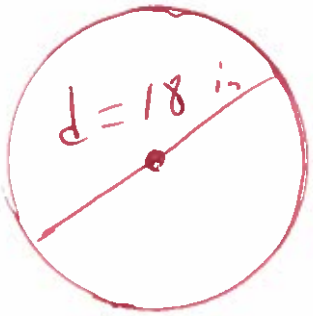
$A = \pi (9)^2$

$A = \pi (9)(9)$

$A = \pi (81)$

Exact

$A = 81\pi$ Square inches



$r = \frac{1}{2} d = \frac{1}{2}(18) = \frac{18}{2} = 9$

$r = 9$ in

$A = \pi r^2$ $\quad \pi = 3.14$, $r = 9$

$A = 3.14 (9)^2$

$A = 3.14 (9)(9)$

$A = 3.14 (81)$ Approx

$A = 254.34$ Square inches

58. $A = lw$ $l = 17\frac{1}{2}$ ft, $w = 10$ ft

$A = (17\frac{1}{2})(10)$

$A = (17.5)(10)$

$A = 175$ Square feet

59. $A = \pi r^2$ $r = 5$

$A = \pi(5)^2$

$A = \pi(5)(5)$

$A = \pi(25)$

$A = 25\pi$ OR approx

$A = 25(3.14)$

$A = 78.5$ Square inch

$\frac{\$11}{78.5} = .140127388$ Per Square inch

1 Big Pizza

$A = \pi r^2$ $r = 4$

$A = \pi(4)^2$

$A = \pi(4)(4)$

$A = \pi(16)$

$A = 16\pi$ OR approx

$A = 16(3.14)$

$A = 50.24$ Square inch

$\frac{\$10}{2(50.24)}$ 2 small Pizzas

$\frac{\$10}{100.48} = .099522293$ Per Square inch

Best → two 8-inch pizzas

$r = \frac{1}{2}(8)$

$r = 4$

$d = 8$ in

$r = \frac{1}{2}(10)$

$r = 5$

$d = 10$ in

(60) find area of the shaded region

$A_1 = L \cdot W$

$A_1 = (44)(44)$

$A_1 = 1936$ SQ inches (of SQ unit) area

$A_2 = \pi r^2$ $\pi = 3.14$, $r = 22$

$A_2 = 3.14(22)^2$

$A_2 = 3.14(22)(22)$

$A_2 = 3.14(484)$

$A_2 = 1519.76$ SQ inches (area of circle)

$A_1 - A_2 =$ (area of SQ unit) − (area of circle)

$(1936) - (1519.76) =$

$1936 - 1519.76 =$

416.24 = SQ inches area of shaded region

61

$C = \frac{5}{9}(F - 32)$ $\quad F = 131$

$C = \frac{5}{9}(131 - 32)$

$C = \frac{5}{9}(99)$

$C = \frac{5}{9}\left(\frac{99}{1}\right)$

$C = \frac{5}{\cancel{9}}\left(\frac{\cancel{9}(11)}{1}\right)$

$C = 5(11)$

$C = 55°$

62

$8(x+9)+7 = 79$ $\quad$ PEMDAS

$8x + 72 + 7 = 79$

$8x + 79 = 79$

$8x + \cancel{79} - \cancel{79} = 79 - 79$

$8x = 0$

$\frac{8x}{8} = \frac{0}{8}$

$x = 0$

63 $x+y=9$ $y=$

$x+y-x=9-x$

$y=9-x$

OR

$y=-x+9$

64 $A=B+Bcd$ $C=$

$A-B=B+Bcd-B$

$A-B=Bcd$

$\frac{A-B}{Bd}=\frac{Bcd}{Bd}$

$\frac{A-B}{Bd}=C$

65 $-6x \leq 18$

$\frac{-6x}{-6} \geq \frac{18}{-6}$ divide by a negative and turn the alligator around

$x \geq -3$

$[-3, \infty)$

66. $-8x+4 \geq 4(4-x)$

PEMDAS

$-8x+4 \geq 16-4x$

$-8x+4-4 \geq 16-4x-4$

$-8x \geq -4x+12$

$-8x+4x \geq -4x+12+4x$

$-4x \geq 12$

$\frac{-4x}{-4} \leq \frac{12}{-4}$ divide by a negative and turn alligator around

$x \leq -3$

$(-\infty, -3]$

6) $y = -4x + 3$ graph

x	y
0	3
1	-1
2	-5

$y = -4(0) + 3$

$y = 0 + 3$

$y = 3$

$y = -4(1) + 3$

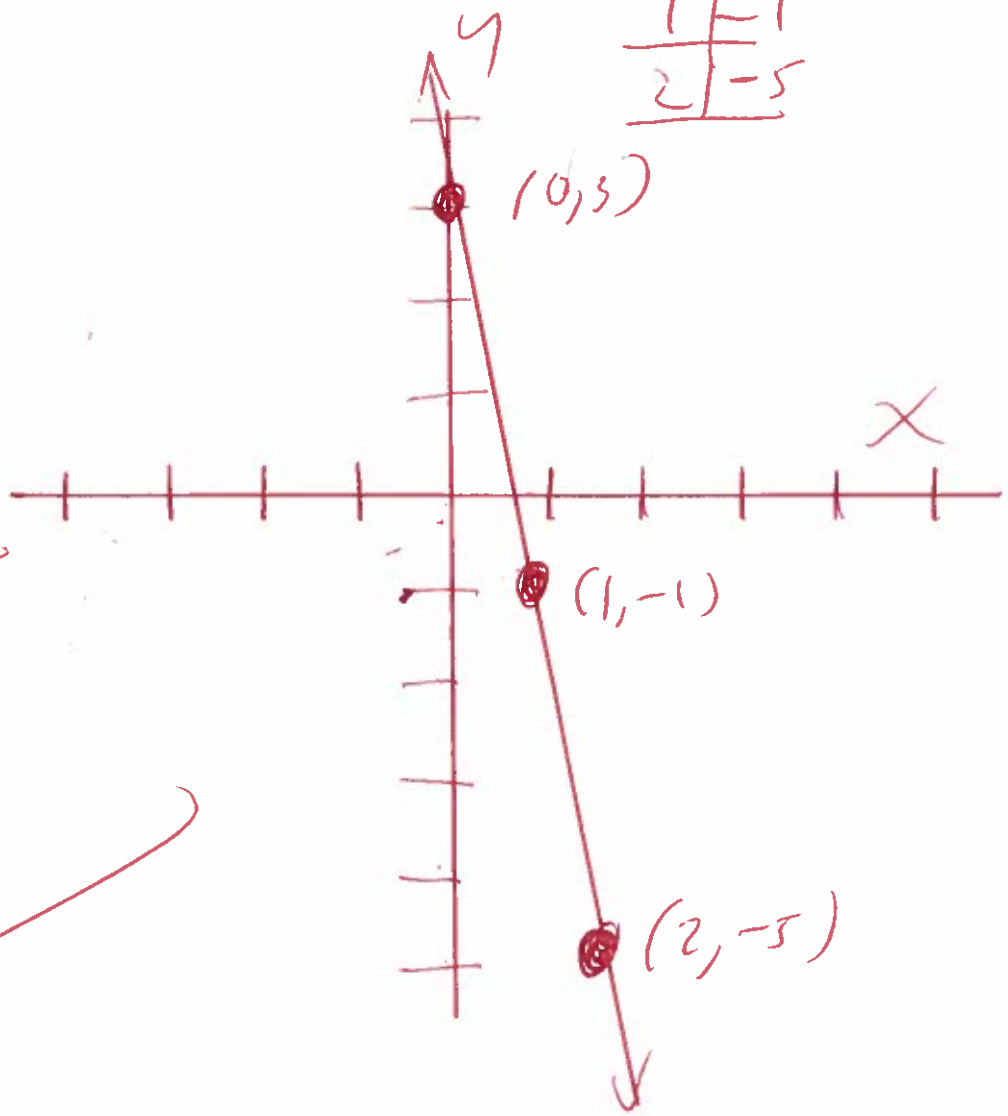
$y = -4 + 3$

$y = -1$

$y = -4(2) + 3$

$y = -8 + 3$

$y = -5$



(68) $x+y=7$ Graph

$x+y-x=7-x$

$y=7-x$

$y=-x+7$

x	y
0	7
1	6

$y=-(0)+7$

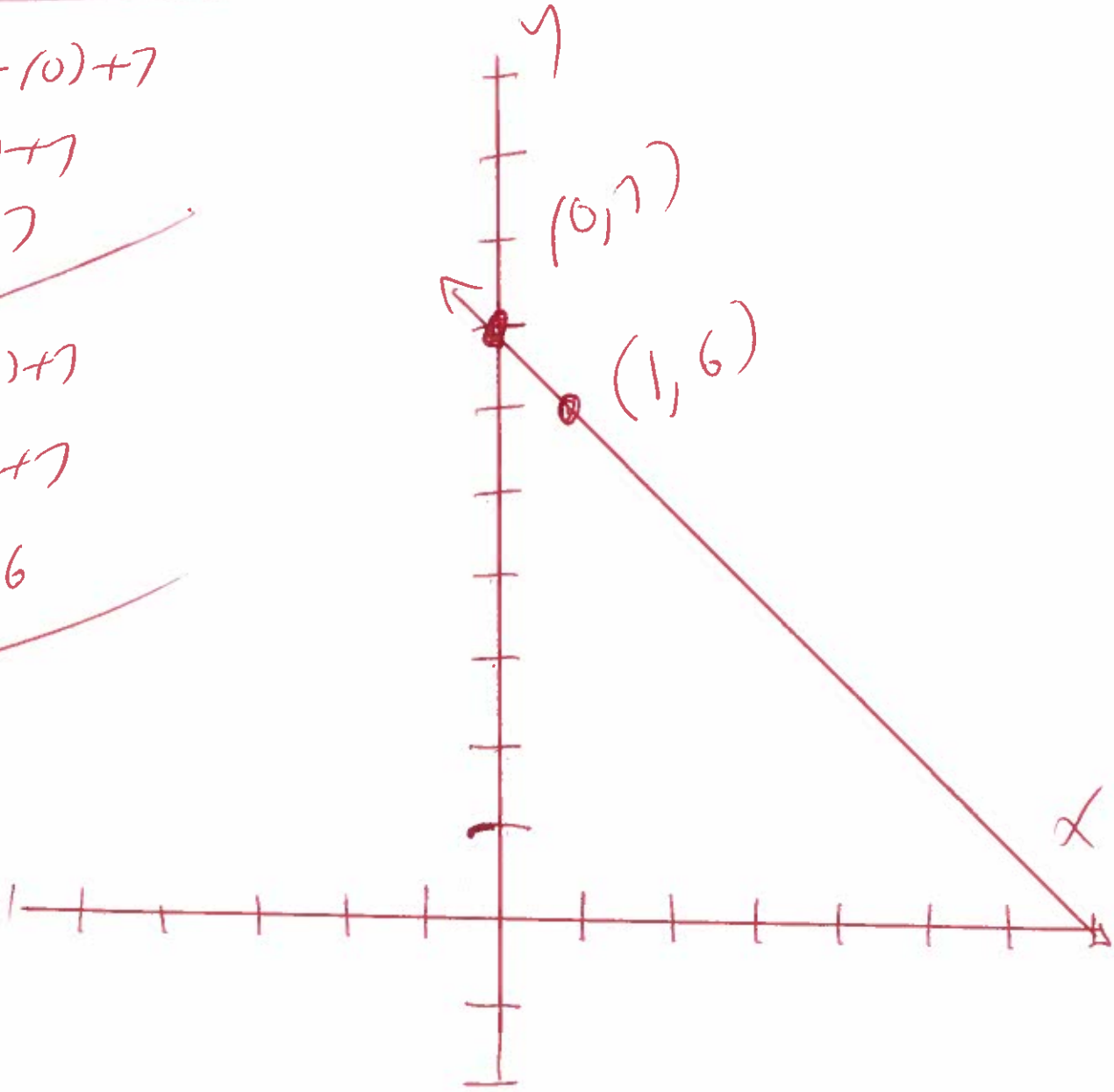
$y=0+7$

$y=7$

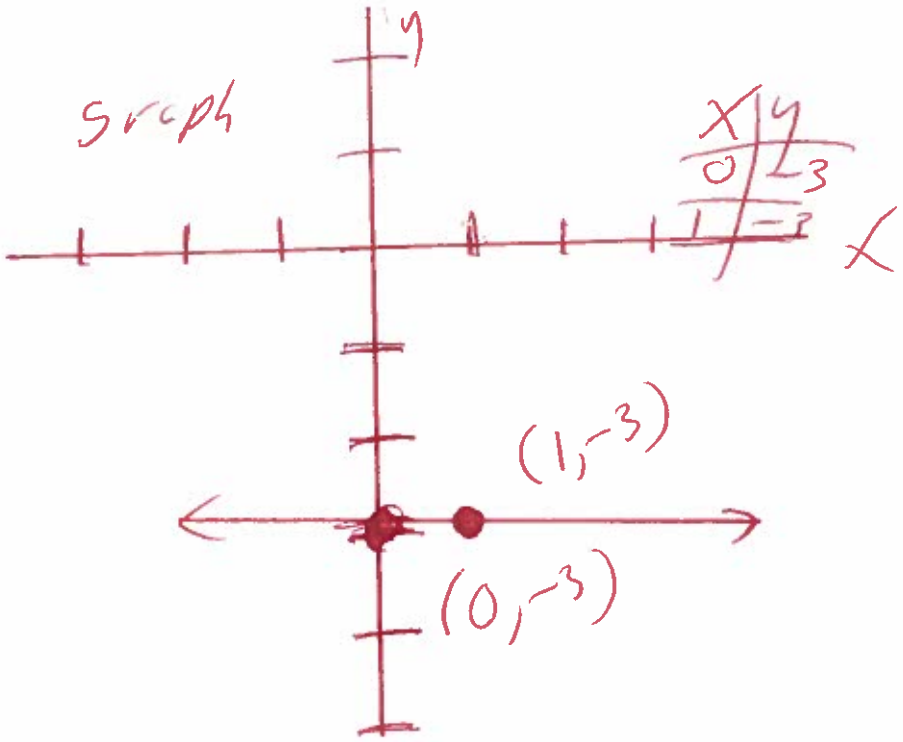
$y=-(1)+7$

$y=-1+7$

$y=6$



(69) $y = -3$ graph



x	y
0	-3
1	-3

(70) $y = -\frac{3}{2}x - 3$ graph

$y = -\frac{3}{2}(0) - 3$

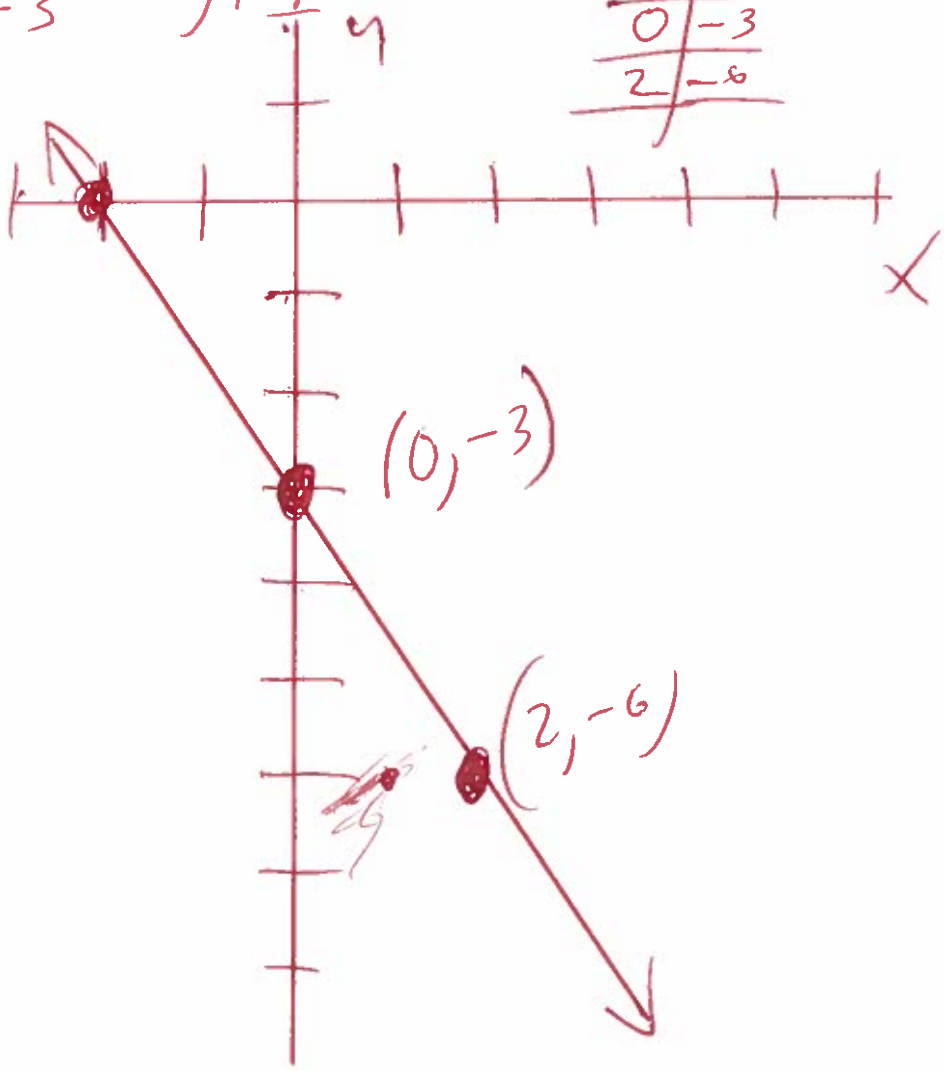
$y = 0 - 3$

$y = -3$

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

$y = -3 - 3$

$y = -6$



x	y
0	-3
2	-6

71. $8x - 4y = -8$ graph

Find x-intercept let $y = 0$

$8x - 4(0) = -8$

$8x - 0 = -8$

$8x = -8$

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

$x = -1$ x-intercept $(-1, 0)$

Find y-intercept let $x = 0$

$8x - 4y = -8$

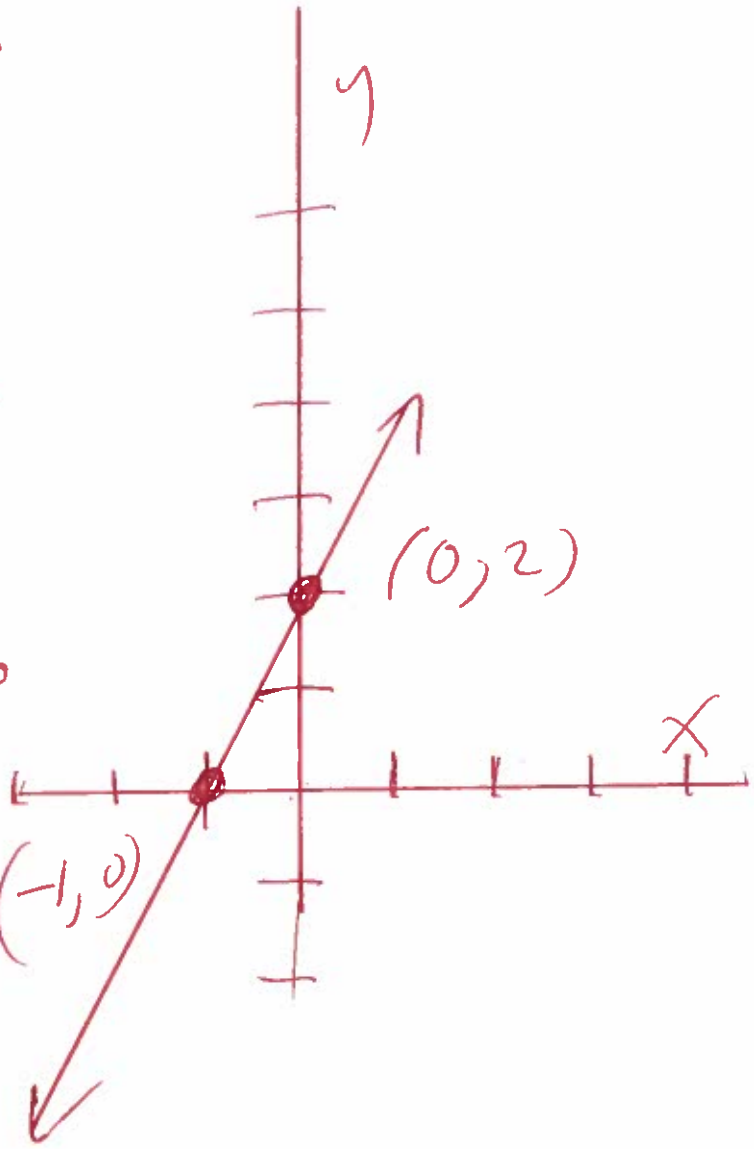
$8(0) - 4y = -8$

$0 - 4y = -8$

$-4y = -8$

$\frac{-4y}{-4} = \frac{-8}{-4}$

$y = 2$ y-intercept $(0, 2)$



72. (8, 1) and (6, −6) find slope

$x_1\ y_1 \quad x_2\ y_2$

$$m = \frac{y_1 - y_2}{x_1 - x_2}$$

$$m = \frac{(1) - (-6)}{(8) - (6)}$$

$$m = \frac{1+6}{8-6}$$

$$m = \frac{7}{2}$$

73. (9, 8) and (3, 8) find slope

$x_1\ y_1 \quad x_2\ y_2$

$$m = \frac{y_1 - y_2}{x_1 - x_2}$$

$$m = \frac{(8) - (8)}{(9) - (3)}$$

$$m = \frac{8-8}{9-3}$$

$$m = \frac{0}{6}$$

$$m = 0$$

74. $y = -2x + 9$ find slope

slope $= m = -2$ y-intercept $= 9$

or

$(0, 9)$

formula

$y = mx + b$

slope $= m$ y-intercept $= b$

or

$(0, b)$

75. $3x + y = 9$ find slope

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

$y = 9 - 3x$

$y = -3x + 9$

slope $= m = -3$ y-intercept $= 9$

or

$(0, 9)$

formula

$y = mx + b$

slope $= m$ y-intercept $= b$

or

$(0, b)$

16) $8x - 9y = 72$ find slope

formula
$y = mx + b$
slope $= m$ y-intercept $= b$ or $(0, b)$

$8x - 9y - 8x = 72 - 8x$

$-9y = 72 - 8x$

$\frac{-9y}{-9} = \frac{72}{-9} - \frac{8x}{-9}$

$y = -8 + \frac{8}{9}x$

$y = \frac{8}{9}x - 8$

slope $= m = \frac{8}{9}$ y-intercept $= -8$ OR $(0, -8)$

17) $m = \text{slope} = 3$ point $= (-8, 9)$ x_1, y_1

$y - y_1 = m(x - x_1)$

$y - (9) = 3(x - (-8))$

$y - 9 = 3(x + 8)$

$y - 9 = 3x + 24$

$y - 9 + 9 = 3x + 24 + 9$

$y = 3x + 33$

78. $x^2 - 7x + 2$, $x = -1$

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

$(-1)(-1) - 7(-1) + 2 =$

$1 + 7 + 2 =$

$8 + 2 =$

$10 =$

79. $3x - y = 7$
$x + 9y = 21$

Is $(x, y) = (4, 5)$ a solution

$3(4) - (5) = 7$
$12 - 5 = 7$
$7 = 7$ ✓ Good

$(4) + 9(5) = 21$
$4 + 45 = 21$
$49 \neq 21$ NO

NO Not a solution.

Is $(x, y) = (3, 2)$ a solution

$3x - y = 7$
$x + 9y = 21$

$3(3) - (2) = 7$
$9 - 2 = 7$ ✓ Good
$7 = 7$

$(3) + 9(2) = 21$
$3 + 18 = 21$
$21 = 21$ ✓ Good

Yes a solution

20

$x+y=10$

$x=4y$

Subst

$(4y)+y=10$

$4y+1y=10$

$5y=10$

$\frac{5y}{5}=\frac{10}{5}$

$y=2$

$x+y=10$

$x+(2)=10$

$x+2=10$

$x+2-2=10-2$

$x=8$

$(x, y)=(8, 2)$

(8) $y = 4x+1$

$2y - 4x = 14$

Subst

$2(4x+1) - 4x = 14$

$8x + 2 - 4x = 14$

$4x + 2 = 14$

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

$4x = 12$

$\frac{4x}{4} = \frac{12}{4}$

$x = 3$

$y = 4x + 1$

$y = 4(3) + 1$

$y = 12 + 1$

$y = 13$

$(x, y) = (3, 13)$

(82)

$$2x+y=6$$
$$6x-y=10$$

$$8x+0=16$$

$$8x=16$$

$$\frac{8x}{8}=\frac{16}{8}$$

$$x=2$$

$$2x+y=6$$

$$2(2)+y=6$$

$$4+y=6$$

$$4+y-4=6-4$$

$$y=2$$

$$(x,y)=(2,2)$$

8)

$$x+5y=12$$
$$6x+3y=-9$$

$$\begin{matrix} x+5y=12 \\ 6x+3y=-9 \end{matrix} \begin{matrix} (-3) \\ (5) \end{matrix}$$ multiply

$$-3x-15y=-36$$
$$30x+15y=-45$$

$$27x = -81$$

$$\frac{27x}{27} = \frac{-81}{27}$$

$$x=-3$$

$$x+5y=12$$
$$(-3)+5y=12$$
$$-3+5y=12$$
$$-3+5y+3=12+3$$
$$5y=15$$
$$\frac{5y}{5}=\frac{15}{5}$$
$$y=3$$

$$(x, y)=(-3, 3)$$

84. $(-4m^2n^4)(8mn^4) =$

$(-4m^2n^4)(8m^1n^4) =$

$-32m^{2+1}n^{4+4}$ = add powers

$-32m^3n^8 =$

85. $(5z^{10})(-4z^6)(z^4) =$

$(5z^{10})(-4z^6)(1z^4) =$

$-20z^{10+6+4}$ = add powers

$-20z^{20} =$

86. $(x^4)^7 =$

$x^{(4)(7)}$ = mult powers

$x^{28} =$

87) $(6p^8)^2 =$

$((6)^1 p^8)^2 =$ rewrite

$(6)^{1(2)} p^{8(2)} =$ mult powers

$(6)^2 p^{16} =$

$(6)(6) p^{16} =$

$36p^{16} =$

88) $(-5a^5b^6c)^2 =$

$((-5)^1 a^5 b^6 c^1)^2 =$ rewrite

$(-5)^{1(2)} a^{5(2)} b^{6(2)} c^{1(2)} =$ mult powers

$(-5)^2 a^{10} b^{12} c^2 =$

$(-5)(-5) a^{10} b^{12} c^2 =$

$25a^{10}b^{12}c^2 =$

89. $\left(\frac{-2xz^4}{y^2}\right)^2 =$

$\left(\frac{(-2)^1 x^1 z^4}{y^2}\right)^2 =$

$\frac{(-2)^{1(2)} x^{1(2)} z^{4(2)}}{y^{2(2)}} =$ Mult Pwr.

$\frac{(-2)^2 x^2 z^8}{y^4} =$

$\frac{(-2)(-2) x^2 z^8}{y^4} =$

$\frac{4x^2z^8}{y^4} =$

(90) $a^4 a^5 a^6 =$

a^{4+5+6} = add powers

$a^{15} =$

(91.) $\frac{4x^4y^2z}{x^2yz} =$

$\frac{4x^4y^2z^1}{x^2y^1z^1}$ = rewrite

$\frac{4x^4y^2}{x^2y^1} =$

$4x^{4-2}y^{2-1}$ = Subtract powers

$4x^2y^1 =$

$4x^2y =$

92. $P(x) = x^2 + x + 4$ $\quad P(8)$

$P(8) = (8)^2 + (8) + 4$ $\quad$ PEMDAS

$P(8) = (8)(8) + (8) + 4$

$P(8) = 64 + 8 + 4$

$P(8) = 72 + 4$

$P(8) = 76$

93. $-2a^2 - 8ab + 4b^2 - 4a^2 - 4ab + 5b^2 =$

$-6a^2 - 12ab + 9b^2 =$

94. $(7y^2 + 3y - 9) - (-9y + 5) =$ PEMDAS

$7y^2 + 3y - 9 + 9y - 5 =$

$7y^2 + 12y - 14 =$

95. $(-3y^2 - 7y) + (2y^2 + 2y - 5) =$

$-3y^2 - 7y + 2y^2 + 2y - 5 =$ PEMDAS

$-1y^2 - 5y - 5 =$

$-y^2 - 5y - 5 =$

96 $(x+3)(x^3-6x+4)=$

PEMDAS

$x^4-6x^2+4x+3x^3-18x+12=$

$x^4+3x^3-6x^2-14x+12=$

97 $-5x(x^2+7x-8)=$

PEMDAS

$-5x^3-35x^2+40x=$

98 find area

PEMDAS

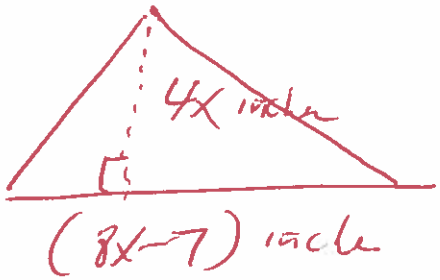
$A=\frac{1}{2}BH$

$A=\frac{1}{2}(8x-7)(4x)$

$A=\frac{1}{2}(32x^2-28x)$

$A=\frac{1}{2}(32x^2)-\frac{1}{2}(28x)$

$A=16x^2-14x$ square inches



99 $2(y-5)(7y-1)=$

PEMDAS

$2(7y^2-1y-35y+5)=$

$2(7y^2-36y+5)=$

$14y^2-72y+10=$

100 $(x+12)^2 =$ PEMDAS

$(x+12)(x+12) =$

$x^2+12x+12x+144 =$

$x^2+24x+144 =$

101 $(a-8)(a+8) =$ PEMDAS

$a^2+8a-8a-64$

$a^2-64 =$

102 $8x^2(5x^2-4x+9) =$ PEMDAS

$40x^4-32x^3+72x^2 =$

103 $(3b-2d)^2 =$ PEMDAS

$(3b-2d)(3b-2d) =$ rewrite

$9b^2-6bd-6bd+4d^2 =$

$9b^2-12bd+4d^2 =$

104 $3^{-2} =$

$\frac{1}{3^2} =$ rewrite

$\frac{1}{3 \cdot 3} =$

$\frac{1}{9} =$

105 $\left(\frac{1}{2}\right)^{-5}$

$\left(\frac{1}{2^1}\right)^{-5} =$

$(2^{-1})^{-5} =$ rewrite

$2^{(-1)(-5)} =$ mult power

$2^5 =$

$(2)(2)(2)(2)(2) =$

$32 =$

106 $\frac{y^{-8}}{y} =$

$\frac{y^{-8}}{y^1} =$

$\frac{1}{y^1 y^8} =$ Rewrite

$\frac{1}{y^{1+8}} =$ add pows

$\frac{1}{y^9} =$

107 $\frac{G^{-3}}{G^{-6}} =$

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

$G^{6-3} =$ Subtract pows.

$G^3 =$

108 $(-3x^5y^{-5})(4x^{-7}y^2) =$

$-12x^{5-2}y^{-5+2} =$

$-12x^3y^{-3} =$

$\frac{-12x^3}{y^3} =$ rewrite

109 $(a^{-6}b^7)^{-4} =$

$a^{-6(-4)}b^{7(-4)} =$ mult pwrs

$a^{24}b^{-28} =$

$\frac{a^{24}}{b^{28}} =$ rewrite

110 Write the number in Scientific Notation

$86000 =$

$8.6 * 10^4 =$

111. $0,0000151 =$

$1.51 * 10^{-6} =$

112. $\frac{12p^6 + 6p^4}{2p}$

$\frac{12p^6}{2p^1} + \frac{6p^4}{2p^1} =$ rewrite

$6p^{6-1} + 3p^{4-1} =$ subtract powers

$6p^5 + 3p^3 =$

113 8, 28 find GCF

Prime 2, 3, 5, 7

2|8
2|4
2|2
1

2|28
2|14
7|7
1

GCF = 2 · 2
= 4

8 = 2 · 2 · 2
28 = 2 · 2 · 7

114 $4x + 28$ = factor GCF

$4(x+7) =$

115 $4xy - 54x^2$ = factor

$4x^1y^1 - 54x^2$ = rewrite

$2x^1(2y^1 - 27x) =$

$2x(2y - 27x) =$

116 $-45x^6y^7 - 18x^8y^6 =$ factor

$9x^6y^6(-5y^1 - 2x^2) =$

$9x^6y^6(-5y - 2x^2) =$

117 $x^2 - 8x - 9 =$ factor (3;1) Possible

$(x+1)(x-9) =$

Ck

$(x+1)(x-9) =$

$x^2 - 9x + 1x - 9 =$

$x^2 - 8x - 9 =$ ✓ Good

118. $64x^2 - 81y^2 =$ factor

$(8x)^2 - (9y)^2 =$

$(8x+9y)(8x-9y)$

formula

$a^2 - b^2$

$(a+b)(a-b)$

119 $(x-3)(x+2) = 0$

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

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

$x=3$ or $x=-2$

(120) $4x(x-9)=0$

so $4x=0$ or $x-9=0$

$\frac{4x}{4}=\frac{0}{4}$ or $x-9+9=0+9$

$x=0$ or $x=9$

(121) $(8x+9)(6x-7)=0$

so $8x+9=0$ or $6x-7=0$

$8x+9-9=0-9$ or $6x-7+7=0+7$

$8x=-9$ or $6x=7$

$\frac{8x}{8}=\frac{-9}{8}$ or $\frac{6x}{6}=\frac{7}{6}$

$x=-\frac{9}{8}$ or $x=\frac{7}{6}$

(122) $x^2-11x+18=0$

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

18·1
9·2
6·3

Possible

so $x-2=0$ or $x-9=0$

$x-2+2=0+2$ or $x-9+9=0+9$

$x=2$ or $x=9$

123 $x^2+3x-10=0$

$(x-2)(x+5)=0$

Let $x-2=0$ OR $x+5=0$

$x-2+2=0+2$ OR $x+5-5=0-5$

$x=2$ OR $x=-5$

10.1
2,5
Possible

124 $(x+1)(x+6)=2x$

$x^2+6x+1x+6=2x$

$x^2+7x+6=2x$

$x^2+7x+6-2x=0$

$x^2+5x+6=0$

$(x+2)(x+3)=0$

Let $x+2=0$ OR $x+3=0$

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

$x=-2$ OR $x=-3$

Possible
6.1
2,3

125 $x^3 - 11x^2 + 24x = 0$

$x(x^2 - 11x + 24) = 0$

$x(x-3)(x-8) = 0$

Possible: 24 · 1, 12 · 2, 6 · 4, 3 · 8

Let $x = 0$ OR $x - 3 = 0$ OR $x - 8 = 0$

$x = 0$ or $x - 3 + 3 = 0 + 3$ or $x - 8 + 8 = 0 + 8$

$x = 3$ or $x = 8$

126 $R(x) = \dfrac{1+3x}{x^3 - 6x^2 + 8x}$ find domain

Let $x^3 - 6x^2 + 8x = 0$

Possible: 8 · 1, 4 · 2

$x(x^2 - 6x + 8) = 0$

$x(x-2)(x-4) = 0$

$x = 0$ or $x - 2 = 0$ or $x - 4 = 0$

$x - 2 + 2 = 0 + 2$ or $x - 4 + 4 = 0 + 4$

$x = 2$ or $x = 4$

The domain $\{x \mid x$ is a real number and $x \neq 0, 2, 4\}$

127

$$\frac{x+3}{x^2-3x-18} = \text{Simp}$$

$$\frac{x+3}{(x+3)(x-6)} =$$

$$\frac{1(x+3)}{(x+3)(x-6)} = \text{rule}$$

$$\frac{1}{x-6} =$$

18.1 Possible
9.2
6.2.

128.

$$\frac{x^2-25}{x^2-4x-5} \cdot \frac{x+1}{x} =$$

$$\frac{(x)^2-(5)^2}{x^2-4x-5} \cdot \frac{(x+1)}{x} =$$

$$\frac{(x+5)(x-5)}{(x+1)(x-5)} \cdot \frac{(x+1)}{x} =$$

$$\frac{(x+5)(x-5)}{(x+1)(x-5)} \cdot \frac{(x+1)}{x} =$$

$$\frac{x+5}{x} =$$

(12) $\frac{3m}{5n} + \frac{7m}{5n} =$

$\frac{3m+7m}{5n} =$

$\frac{10m}{5n} =$

$\frac{(2)(5)m}{(5)n} =$

$\frac{2m}{n} =$

(13) $\frac{4x+6}{x^2-4x-5} - \frac{3x+5}{x^2-4x-5} =$

$\frac{(4x+6)-(3x+5)}{x^2-4x-5} =$

$\frac{4x+6-3x-5}{x^2-4x-5} =$

$\frac{x+1}{x^2-4x-5} =$

$\frac{(x+1)}{(x+1)(x-5)} =$

$\frac{1(x+1)}{(x+1)(x-5)} =$ reverib

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

131

$6 - \frac{2}{c} = 8$

$6 - \frac{2}{c} - 6 = 8 - 6$

$-\frac{2}{c} = 2$

$-\frac{2}{c} = \frac{2}{1}$ rewrite

$-2(1) = 2(c)$ cross mult

$-2 = 2c$

$\frac{-2}{2} = \frac{2c}{2}$

$-1 = c$

132

$\frac{w-5}{2} = \frac{w}{7}$

$7(w-5) = 2(w)$ cross mult

$7w - 35 = 2w$

$7w - 35 + 35 = 2w + 35$

$7w = 2w + 35$

$7w - 2w = 2w + 35 - 2w$

$5w = 35$

$\frac{5w}{5} = \frac{35}{5}$

$w = 7$

133. $\frac{5}{4y-9} = -5$

$\frac{5}{4y-9} = \frac{-5}{1}$

$5(1) = -5(4y-9)$ cross Mult

$5 = -20y + 45$

$5 - 45 = -20y + 45 - 45$

$-40 = -20y$

$\frac{-40}{-20} = \frac{-20y}{-20}$

$2 = y$

134. $\frac{3}{y} + \frac{4}{3} = \frac{5}{3y}$ LCD = $3y$

$\frac{3}{y}(3y) + \frac{4}{3}(3y) = \frac{5}{3y}(3y)$ Mult

divide

$3(3) + 4(y) = 5$

$9 + 4y = 5$

$9 + 4y - 9 = 5 - 9$

$4y = -4$

$\frac{4y}{4} = \frac{-4}{4}$

$y = -1$

135. $\sqrt{49x^6} =$

$\sqrt[3]{49x^6} =$

$7x^{6/2} =$ divide power

$7x^3 =$

136. $\sqrt[3]{27} =$ Prime 2, 3, 5, 7...

$\sqrt[3]{3^3} =$

3 | 27
3 | 9
3 | 3
1

$3^{3/3} =$ divide power

$3^1 =$

$3 =$

137. $\sqrt{\frac{81}{64}} =$

$\frac{\sqrt{81}}{\sqrt{64}} =$

$\frac{9}{8} =$

138

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

Graph

x	f(x)
4	0
5	1
13	3
20	4

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

$f(4) = \sqrt{0}$

$f(4) = 0$

$f(5) = \sqrt{5-4}$

$f(5) = \sqrt{1}$

$f(5) = 1$

$f(13) = \sqrt{13-4}$

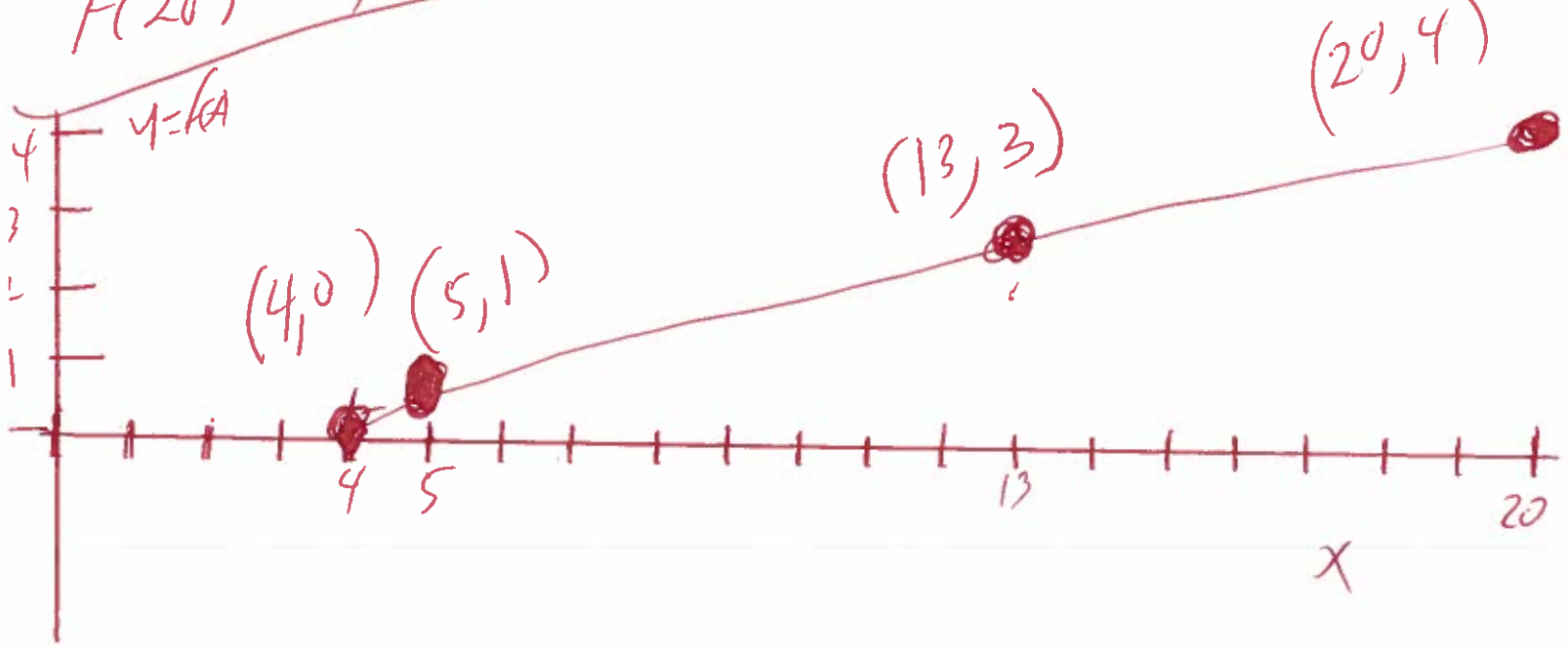
$f(13) = \sqrt{9}$

$f(13) = 3$

$f(20) = \sqrt{20-4}$

$f(20) = \sqrt{16}$

$f(20) = 4$



(39)

$\left(\frac{1}{256}\right)^{\frac{1}{4}} =$

Prime 2, 3, 5, 7

2 | 256
2 | 128
2 | 64
2 | 32
2 | 16
2 | 8
2 | 4
2 | 2
1

$\left(\frac{1}{2^8}\right)^{\frac{1}{4}} =$

$\left(2^{-8}\right)^{\frac{1}{4}} =$ rewrite

$2^{\left(\frac{-8}{1}\right)\left(\frac{1}{4}\right)}$ = Mult power

$2^{\frac{-8}{4}} =$

$2^{-2} =$

$\frac{1}{2^2} =$ rewrite

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

$\frac{1}{4} =$

(14) $1024^{\frac{4}{5}} =$

$(2^{10})^{\frac{4}{5}} =$

$2^{(\frac{10}{1})(\frac{4}{5})} =$ Mult powers

$2^{\frac{40}{5}} =$

$2^{8} =$

$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 =$

$256 =$

Prime 2, 3, 5, 7...

2 | 1024
2 | 512
2 | 256
2 | 128
2 | 64
2 | 32
2 | 16
2 | 8
2 | 4
2 | 2
1

(14) $\sqrt{28} =$

$\sqrt{4 \cdot 7}$ = Rewrite

$\sqrt{4}\sqrt{7} =$

$2\sqrt{7} =$

Prime 2, 3, 5, 7...

2 | 28
2 | 14
7 | 7
1

142 $\sqrt{16a^4b^5} =$

$\sqrt[2]{16a^4b^4b^1}$: rewrite

$4a^{4/2}b^{4/2}\sqrt[2]{b^1} =$ divide powers

$4a^2b^2\sqrt[2]{b^1} =$

$4a^2b^2\sqrt{b} =$

143 $\sqrt{x-18} = 5$

$(\sqrt{x-18})^2 = (5)^2$

$x-18 = 25$

$x-18+18 = 25+18$

$x = 43$

Ck $\sqrt{x-18} = 5$

$\sqrt{43-18} = 5$

$\sqrt{25} = 5$

$5 = 5$ ✓

Good

144

$\sqrt{x+7} = \sqrt{2x-1}$

$(\sqrt{x+7})^2 = (\sqrt{2x-1})^2$

$x+7 = 2x-1$

$x+7-7 = 2x-1-7$

$x = 2x-8$

$1x-2x = 2x-8-2x$

$-1x = -8$

$\frac{-1x}{-1} = \frac{-8}{-1}$

$x = 8$

CK $\sqrt{x+7} = \sqrt{2x-1}$

$\sqrt{8+7} = \sqrt{2(8)-1}$

$\sqrt{15} = \sqrt{16-1}$

$\sqrt{15} = \sqrt{15}$ ✓

Good

(45) $(x+1)^2 = 25$

$\sqrt{(x+1)^2} = \pm\sqrt{25}$

$x+1 = \pm 5$

$x+1 = -5$ OR $x+1 = 5$

$x+1-1 = -5-1$ OR $x+1-1 = 5-1$

$x = -6$ OR $x = 4$

CK

$(x+1)^2 = 25$

$(-6+1)^2 = 25$

$(-5)^2 = 25$

$(-5)(-5) = 25$

$25 = 25$ ✓ Good

$(x+1)^2 = 25$

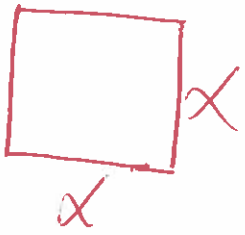
$(4+1)^2 = 25$

$(5)^2 = 25$

$(5)(5) = 25$

$25 = 25$ ✓ Good

146



find x if area is 121 square feet

$A = L \cdot W$

$A = (x)(x) = 121$

$x^2 = 121$

$\sqrt{x^2} = \pm\sqrt{121}$

$x = \pm 11$

~~$x = -1$~~ or $x = 11$

Check

$A = L \cdot W$

$A = (11)(11)$

$A = 121$ ✓

Good

147 $m^2+5m+6=0$

6.1 2.3 Pass. 64

$(m+2)(m+3)=0$

Let $m+2=0$ OR $m+3=0$

$m+2-2=0-2$ OR $m+3-3=0-3$

$m=-2$ OR $m=-3$

Use Quad formula

$1m^2+5m+6=0$

$a=1,\ b=5,\ c=6$

$$m=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$$

$$m=\frac{-(5)\pm\sqrt{(5)^2-4(1)(6)}}{2(1)}$$

$$m=\frac{-5\pm\sqrt{25-24}}{2}$$

$$m=\frac{-5\pm\sqrt{1}}{2}$$

$$m=\frac{-5\pm1}{2}$$

$m=\frac{-5+1}{2}$ or $m=\frac{-5-1}{2}$

$m=\frac{-4}{2}$ OR $m=\frac{-6}{2}$

$m=-2$ OR $m=-3$

(148) $y = 4y^2 - 5$

$0 = 4y^2 - 5 - y$

$0 = 4y^2 - y - 5$

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

so $4y - 5 = 0$ OR $y + 1 = 0$

$4y - 5 + 5 = 0 + 5$ OR $y + 1 - 1 = 0 - 1$

$4y = 5$ OR $y = -1$

$\frac{4y}{4} = \frac{5}{4}$

$y = 5/4$

use Quad formula

$4y^2 - 1y - 5 = 0$

$a = 4,\ b = -1,\ c = -5$

$y = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$y = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(4)(-5)}}{2(4)}$

$y = \frac{1 \pm \sqrt{1 + 80}}{8}$

$y = \frac{1 \pm \sqrt{81}}{8}$

$y = \frac{1 \pm 9}{8}$

$y = \frac{1+9}{8}$ or $y = \frac{1-9}{8}$

$y = \frac{10}{8}$ or $y = \frac{-8}{8}$

$y = \frac{2(5)}{2(4)}$ or $y = -1$

Possible: (4,1) (1,5) (2,2)

$y = \frac{5}{4}$ or $y = -1$

(149) $1x^2 + 4x + 8 = 0$

$a=1,\ b=4,\ c=8$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(4) \pm \sqrt{(4)^2 - 4(1)(8)}}{2(1)}$$

$$x = \frac{-4 \pm \sqrt{16 - 32}}{2}$$

$$x = \frac{-4 \pm \sqrt{-16}}{2}$$

$$x = \frac{-4 \pm 4i}{2}$$

$$x = -2 \pm 2i$$

$x = -2 - 2i$ OR $x = -2 + 2i$

formula

$\sqrt{-1} = i$

$\sqrt{-4} = 2i$

$\sqrt{-9} = 3i$

$\sqrt{-16} = 4i$