

$$\textcircled{1} \quad \frac{832}{8} =$$

$$104 =$$

$$\begin{array}{r} 104 \\ 8 \overline{) 832} \\ \underline{-(8)} \\ 32 \\ \underline{-(32)} \\ 0 \text{ rem} \end{array}$$

$\textcircled{2}$ 63 Primes 2, 3, 5, 7, ...

$$\begin{array}{r} 3 \overline{) 63} \\ \underline{3} \\ 21 \\ \underline{3} \\ 7 \\ \underline{7} \\ 1 \end{array}$$

$$63 = 3 \cdot 3 \cdot 7$$

$\textcircled{3}$ 350 Primes 2, 3, 5, 7, ...

$$\begin{array}{r} 2 \overline{) 350} \\ \underline{2} \\ 175 \\ \underline{5} \\ 35 \\ \underline{5} \\ 7 \\ \underline{7} \\ 1 \end{array}$$

$$350 = 2 \cdot 5 \cdot 5 \cdot 7$$

$\textcircled{4}$ 28 and 35

$$\text{LCM} = 140$$

LCM	Primes 2, 3, 5, 7
$2 \overline{) 28}$	$5 \overline{) 35}$
$2 \overline{) 14}$	$7 \overline{) 7}$
$7 \overline{) 7}$	1
1	

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

$$35 = 5 \cdot 7$$

$$\text{LCM} = 2 \cdot 2 \cdot 5 \cdot 7 = 140$$

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Prealgebra

JUST

5. 40 and 70

LCM = 280

LCM

$$\begin{array}{r}
 2 \overline{)40} \\
 \underline{20} \\
 2 \overline{)20} \\
 \underline{10} \\
 2 \overline{)10} \\
 \underline{5} \\
 5 \overline{)5} \\
 \underline{1}
 \end{array}$$

Primes 2, 3, 5, 7

$$\begin{array}{r}
 2 \overline{)70} \\
 \underline{35} \\
 5 \overline{)35} \\
 \underline{7} \\
 7 \overline{)7} \\
 \underline{1}
 \end{array}$$



40 = 2 · 2 · 2 · 5

70 = 2 · 5 · 7

LCM = 2 · 2 · 2 · 5 · 7
= 280

6. 480 and 9000

~~LCM = 14400~~
GCF = 120

GCF

$$\begin{array}{r}
 2 \overline{)480} \\
 \underline{240} \\
 2 \overline{)240} \\
 \underline{120} \\
 2 \overline{)120} \\
 \underline{60} \\
 2 \overline{)60} \\
 \underline{30} \\
 3 \overline{)30} \\
 \underline{15} \\
 5 \overline{)15} \\
 \underline{3}
 \end{array}$$

Primes 2, 3, 5, 7

$$\begin{array}{r}
 2 \overline{)9000} \\
 \underline{4500} \\
 2 \overline{)4500} \\
 \underline{2250} \\
 2 \overline{)2250} \\
 \underline{1125} \\
 3 \overline{)1125} \\
 \underline{375} \\
 3 \overline{)375} \\
 \underline{125} \\
 5 \overline{)125} \\
 \underline{25} \\
 5 \overline{)25} \\
 \underline{5}
 \end{array}$$

480 = 2 · 2 · 2 · 2 · 2 · 3 · 5

9000 = 2 · 2 · 2 · 3 · 3 · 5 · 5 · 5

~~LCM = 14400~~
GCF = 120

⑦ 40 and 16 GCF Primes 2, 3, 5, 7

$$\text{GCF} = 8$$

$$\begin{array}{r} 2 \overline{)40} \\ \underline{20} \\ 20 \\ \underline{20} \\ 0 \\ 5 \overline{)5} \\ \underline{5} \\ 0 \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{)16} \\ \underline{2} \\ 8 \\ \underline{8} \\ 0 \\ 2 \overline{)4} \\ \underline{2} \\ 2 \\ \underline{2} \\ 0 \\ 2 \overline{)2} \\ \underline{2} \\ 0 \\ 1 \end{array}$$



$$40 = 2 \cdot 2 \cdot 2 \cdot 5$$

$$16 = 2 \cdot 2 \cdot 2 \cdot 2$$

$$\text{GCF} = 2 \cdot 2 \cdot 2 = 8$$

⑧ $6 \cdot 8 - 5 =$

$$48 - 5 =$$



$$43 =$$

⑨ $60 \div 10 \cdot (14 - 9) =$

$$60 \div 10 (5) =$$

$$6 (5) =$$

$$30 =$$

$$\textcircled{10} \quad \frac{26(17-14)-12}{3^2-3} =$$

$$\frac{26(3)-12}{(3)(3)-3} =$$

$$\frac{78-12}{9-3} =$$

$$\frac{66}{6} =$$

$$\textcircled{11} =$$

$$\textcircled{11} \quad \frac{11^2-41}{58-2(2+1)^2}$$

$$\frac{11^2-41}{58-2(3)^2} =$$

$$\frac{(11)(11)-41}{58-2(3)(3)} =$$

$$\frac{121-41}{58-2(9)} =$$

$$\frac{121-41}{58-18} =$$

$$\frac{80}{40} = \textcircled{2}$$

$\textcircled{4}$

$$(12) \quad |12| =$$

$$(12) =$$

$$12 =$$

$$(13) \quad |-21| =$$

$$(21) =$$

$$21 =$$

$$(14) \quad |0| =$$

$$(0) =$$

$$0 =$$

$$(15) \quad |-7-3| + |-11-16| =$$

$$|-10| + |-27| =$$

$$(10) + (27) =$$

$$10 + 27 =$$

$$37$$

$$(16) \quad -7 + 5 =$$

$$-2 =$$



$$(17) -2 + 67 =$$

$$65 =$$

$$(18) -39 + 0 =$$

$$-39 =$$

$$(19) 21 + (-21) =$$

$$21 - 21 =$$

$$0 =$$

$$(20) 0 - 9 =$$

$$-9 =$$

$$(21) -20 - 0 =$$

$$-20 =$$

$$(22) 1 + (-5) - 12 =$$

$$1 - 5 - 12 =$$

$$-4 - 12 =$$

$$-16 =$$

$$(23) 2 + 6 - (-12) =$$

$$2 + 6 + 12 =$$

$$8 + 12 =$$

$$20 =$$



$$\begin{aligned} (24) \quad & 8 + (-2) - (-5) - 16 = \\ & 8 - 2 + 5 - 16 = \\ & 6 + 5 - 16 = \\ & 11 - 16 = \\ & -5 = \end{aligned}$$

$$\begin{aligned} (25) \quad & |5 - 9| = \\ & |-4| = \\ & (4) = \\ & 4 = \end{aligned}$$

$$\begin{aligned} (26) \quad & |-12| + (-14) = \\ & (12) - 14 = \\ & 12 - 14 = \\ & -2 = \end{aligned}$$

$$\begin{aligned} (27) \quad & -(-17) - |13| = \\ & -(17) - (13) = \\ & -17 - 13 = \\ & -30 = \end{aligned}$$

$$\begin{aligned} (28) \quad & 8(6) = \\ & 48 = \end{aligned}$$



$$\textcircled{29} \quad -3(-5) =$$
$$\textcircled{15} =$$

$$\textcircled{30} \quad -7(8) =$$
$$\textcircled{-56} =$$

$$\textcircled{31} \quad -19(-11) =$$
$$\textcircled{209} =$$

$$\textcircled{32} \quad -4(-3)(-4) =$$
$$-4(12) =$$
$$\textcircled{-48} =$$

$$\textcircled{33} \quad 7(-1)(10)(-3) =$$
$$7(-10)(-3) =$$
$$7(30) =$$
$$\textcircled{210} =$$

$$\textcircled{34} \quad -12 \div 6 =$$
$$\frac{-12}{6} =$$
$$\textcircled{-2} =$$

$$\textcircled{35} \quad \frac{24}{-4} =$$
$$\textcircled{-6} =$$



$$\textcircled{36} \quad \frac{-14}{-2} =$$

$$\textcircled{7} =$$

$$\textcircled{37} \quad \frac{-25}{0} =$$

undefiniert =

$$\textcircled{38} \quad \frac{0}{-92} =$$

$$\textcircled{0} =$$

$$\textcircled{39} \quad -51 + (-12) =$$

$$-51 - 12 =$$

$$\textcircled{-63} =$$

$$\textcircled{40} \quad 12 - 8 =$$

$$\textcircled{4} =$$

$$\textcircled{41} \quad -5 - 20 =$$

$$\textcircled{-25} =$$

$$\textcircled{42} \quad -3 - (-9) =$$

$$-3 + 9 =$$

$$\textcircled{6} =$$

$$\textcircled{43} \quad \frac{14 - 20}{-1} =$$

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

$$\textcircled{6} =$$



$$\textcircled{44} \quad \frac{-12}{-5-7} =$$

$$\frac{-12}{-12} =$$

$$\textcircled{1} =$$

$$\textcircled{45} \quad \frac{48}{-6} - \frac{24}{-8} =$$

$$-8 + 3 =$$

$$\textcircled{-5} =$$

$$\textcircled{46} \quad \frac{-45}{5} - \frac{3}{3} =$$

$$-9 - 1 =$$

$$\textcircled{-10} =$$

$$\textcircled{47} \quad -4^3 =$$

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

$$-(64) =$$

$$\textcircled{-64} =$$

$$\textcircled{48} \quad (-3)^3 =$$

$$(-3)(-3)(-3) =$$

$$9(-3) =$$

$$\textcircled{-27} =$$

$$\textcircled{49} \quad (-6)^2 =$$

$$(-6)(-6) =$$

$$\textcircled{36} =$$



$$\textcircled{50} \quad -2^2 =$$

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

$$\textcircled{-4 =}$$

$$\textcircled{51} \quad 8 + 4 \cdot (-8) =$$

$$8 - 32 =$$

$$\textcircled{-24 =}$$

$$\textcircled{52} \quad -4 + 9(4-6) =$$

$$-4 + 9(-2) =$$

$$-4 - 18 =$$

$$\textcircled{-22 =}$$

$$\textcircled{53} \quad 5(-3+7) - (3-7) =$$

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

$$20 + 4 =$$

$$\textcircled{24 =}$$

$$\textcircled{54} \quad \frac{-|22 - 4^2|^2}{3(-10) + 26} =$$

$$\frac{-|22 - (4)(4)|^2}{-30 + 26} =$$

$$\frac{-|22 - 16|^2}{-4} =$$

$$\frac{-|6|^2}{-4} =$$



$$\frac{-|6| \cdot |6|}{-4} =$$

$$\frac{-(36)}{-4} =$$

$$\frac{-36}{-4} =$$

$$\textcircled{9 =}$$

55 Evaluate
 $9x$ if $x=6$

$$9(6) =$$

$$54 =$$

56 Evaluate

$$23 - z^2 \text{ if } z = -4$$

$$23 - (-4)^2 =$$

$$23 - (-4)(-4) =$$

$$23 - (16) =$$

$$23 - 16 =$$

$$7 =$$

57 Evaluate

$$x^2 + 2x + 4 = \text{ if } x=7$$

$$(7)^2 + 2(7) + 4 =$$

$$(7)(7) + 2(7) + 4 =$$

$$49 + 14 + 4 =$$

$$63 + 4 =$$

$$67 =$$



58 Evaluate

$$8x^2 + 4y = \text{ if } x=7 \text{ and } y=6$$

$$8(7)^2 + 4(6) =$$

$$8(7)(7) + 4(6) =$$

$$8(49) + 24 =$$

$$392 + 24 =$$

$$416$$

59 Evaluate

$$b^2 - 4ac \text{ if } b = -2, a = 2, c = 2$$

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

$$(-2)(-2) - 4(2)(2) =$$

$$4 - 4(4) =$$

$$4 - 16 =$$

$$-12 =$$



60 $-5(x+y) =$

$$-5x - 5y =$$

61 $6(5x-5) =$

$$30x - 30 =$$

62 $6a - 2a + 4 =$

$$4a + 4 =$$

63 $3 + 2(x+4y) =$

$$3 + 2x + 8y =$$

64 $6x - (8 - 4x) =$

$$6x - 1(8 - 4x) =$$

$$6x - 8 + 4x =$$

$$10x - 8 =$$

$$\begin{aligned} (65) \quad & -4(2x-10) - 4x + 9 = \\ & -8x + 40 - 4x + 9 = \\ & -12x + 49 = \end{aligned}$$

14.

$$(66) \quad x+1=16 \quad \text{is } (15) \text{ a solution}$$

$$(15)+1=16$$

$$15+1=16$$

$$16=16$$

YES

$$(67) \quad 8n = 45 - n \quad \text{is } (5) \text{ a solution}$$

$$8(5) = 45 - (5)$$

$$40 = 45 - 5$$

$$40 = 40$$

YES

$$(68) \quad 3(e-4) = 26 \quad \text{is } (11) \text{ a solution}$$

$$3(11-4) = 26$$

$$3(7) = 26$$

$$21 \neq 26$$

NO

$$(69) \quad 6k + 5 = 4k + 9 \quad \text{is } (2) \text{ a solution}$$

$$6(2) + 5 = 4(2) + 9$$

$$12 + 5 = 8 + 9$$

$$17 = 17$$

YES

$$\begin{aligned} (70) \quad -22 &= n - 6 \\ -22 + 6 &= n - \cancel{6} + \cancel{6} \\ -16 &= n \end{aligned}$$

$$\begin{aligned} (71) \quad F + 3 &= -13 \\ F + \cancel{3} - \cancel{3} &= -13 - 3 \\ F &= -16 \end{aligned}$$

$$\begin{aligned} (72) \quad x + 5 &= 19 \\ x + \cancel{5} - \cancel{5} &= 19 - 5 \\ x &= 14 \end{aligned}$$

$$\begin{aligned} (73) \quad a - \cancel{18} &= -5 \\ a - \cancel{18} + \cancel{18} &= -5 + 18 \\ a &= 13 \end{aligned}$$

$$\begin{aligned} (74) \quad -28 &= 8 + a \\ -28 - 8 &= \cancel{8} + a - \cancel{8} \\ -36 &= a \end{aligned}$$

$$\begin{aligned} (75) \quad x + 2 &= -23 + 7 \\ x + 2 &= -16 \\ x + \cancel{2} - \cancel{2} &= -16 - 2 \\ x &= -18 \end{aligned}$$

15

$$\textcircled{76} \quad -5 - 27 = m - 10$$

$$-32 = m - 10$$

$$-32 + 10 = m - 10 + 10$$

$$\textcircled{-22 = m}$$

16

$$\textcircled{77} \quad 7x = 42$$

$$\frac{7x}{7} = \frac{42}{7}$$

$$\textcircled{x = 6}$$

$$\textcircled{78} \quad 8a = -16$$

$$\frac{8a}{8} = \frac{-16}{8}$$

$$\textcircled{a = -2}$$

$$\textcircled{79} \quad \frac{x}{5} = 20$$

$$\cancel{5} \left(\frac{x}{\cancel{5}} \right) = 5(20)$$

$$\textcircled{x = 100}$$

$$\textcircled{80} \quad \frac{x}{-4} = 29$$

$$\cancel{-4} \left(\frac{x}{\cancel{-4}} \right) = -4(29)$$

$$\textcircled{x = -116}$$

81) $A = LW$ Find L if $w = 14$, $A = 168$

$$168 = L(14)$$

$$168 = 14L$$

$$\frac{168}{14} = \frac{14L}{14}$$

$$12 = L$$

$$\begin{array}{r} 12 \\ 14 \overline{) 168} \\ \underline{-(14)} \\ 28 \end{array}$$



82) $8r + 5 = 77$

$$8r + 5 - 5 = 77 - 5$$

$$8r = 72$$

$$\frac{8r}{8} = \frac{72}{8}$$

$$r = 9$$

83) $2n - 8 = 10$

$$2n - 8 + 8 = 10 + 8$$

$$2n = 20$$

$$\frac{2n}{2} = \frac{20}{2}$$

$$n = 10$$

84) $20 = 3x + 5$

$$20 - 5 = 3x + 5 - 5$$

$$15 = 3x$$

$$\frac{15}{3} = \frac{3x}{3}$$

$$5 = x$$

$$\begin{aligned} 85) \quad 79 &= 7 - 9m \\ 79 - 7 &= 7 - 9m - 7 \\ 72 &= -9m \\ \frac{72}{-9} &= \frac{-9m}{-9} \end{aligned}$$

$$\textcircled{-8 = m}$$

$$\begin{aligned} 86) \quad -53 &= 10y + 7 \\ -53 - 7 &= 10y + 7 - 7 \\ -60 &= 10y \\ \frac{-60}{10} &= \frac{10y}{10} \end{aligned}$$

$$\textcircled{-6 = y}$$

$$87) \quad -3a + 4 + 4a = 12 - 26$$

$$a + 4 = -14$$

$$a + 4 - 4 = -14 - 4$$

$$\textcircled{a = -18}$$

$$\begin{aligned} 88) \quad -4 &= 3y - y \\ -4 &= 3y - 1y \\ -4 &= 2y \\ \frac{-4}{2} &= \frac{2y}{2} \end{aligned}$$

$$\textcircled{-2 = y}$$



$$\begin{aligned} \textcircled{89} \quad & -2(2+x) = -14 \\ & -4 - 2x = -14 \\ & \cancel{-4} - 2x + \cancel{4} = -14 + 4 \\ & -2x = -10 \\ & \frac{-2x}{-2} = \frac{-10}{-2} \\ & \textcircled{x = 5} \end{aligned}$$

19

$$\begin{aligned} \textcircled{90} \quad & -(x+5) + 6 = -4 \\ & -1(x+5) + 6 = -4 \\ & -1x - 5 + 6 = -4 \\ & -1x + 1 = -4 \\ & \cancel{-1x} + \cancel{1} = -4 - 1 \\ & -1x = -5 \\ & \frac{-1x}{-1} = \frac{-5}{-1} \\ & \textcircled{x = 5} \end{aligned}$$

$$\begin{aligned} \textcircled{91} \quad & 2p + 14 = 3p - 1 \\ & 2p + \cancel{14} - \cancel{14} = 3p - 1 - 14 \\ & 2p = 3p - 15 \\ & 2p - 3p = \cancel{3p} - 15 - \cancel{3p} \\ & -1p = -15 \\ & \frac{-1p}{-1} = \frac{-15}{-1} \rightarrow \textcircled{p = 15} \end{aligned}$$

$$\begin{aligned} 92) \quad 3m + 15 &= 4m + 5 \\ 3m + 15 - 15 &= 4m + 5 - 15 \\ 3m &= 4m - 10 \\ 3m - 4m &= 4m - 10 - 4m \\ -1m &= -10 \\ \frac{-1m}{-1} &= \frac{-10}{-1} \end{aligned}$$

$$m = 10$$

$$\begin{aligned} 93) \quad 10y &= 7y + 7 + 2y \\ 10y &= 9y + 7 \\ 10y - 9y &= 9y + 7 - 9y \\ 1y &= 7 \end{aligned}$$

$$y = 7$$

$$\begin{aligned} 94) \quad -8b + 4 + 6b &= -3b + 9 \\ -2b + 4 &= -3b + 9 \\ -2b + 4 - 4 &= -3b + 9 - 4 \\ -2b &= -3b + 5 \\ -2b + 3b &= -3b + 5 + 3b \end{aligned}$$

$$1b = 5$$
$$b = 5$$



95

$$x+3 = -15$$

$$x+3-3 = -15-3$$

$$x = -18$$

21

96

$$x+2 = -16$$

$$x+2-2 = -16-2$$

$$x = -18$$

97

$$7x+9 = 16$$

$$7x+9-9 = 16-9$$

$$7x = 7$$

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

$$x = 1$$

98

$$6x+6 = 30$$

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

$$6x = 24$$

$$\frac{6x}{6} = \frac{24}{6}$$

$$x = 4$$

99

$$x + (x - 19) = 151$$

$$x + x - 19 = 151$$

$$2x - 19 = 151$$

$$2x - \cancel{19} + \cancel{19} = 151 + 19$$

$$2x = 170$$

$$\frac{2x}{2} = \frac{170}{2}$$

$$x = 85$$

$$\begin{array}{r} 151 \\ + 19 \\ \hline 170 \end{array}$$

22

$$\begin{array}{r} 85 \\ 2 \overline{) 170} \\ \underline{-(16)} \\ 10 \\ \underline{-(10)} \\ 0 \text{ Rem} \end{array}$$

100

$$5x + x = 324$$

$$5x + 1x = 324$$

$$6x = 324$$

$$\frac{6x}{6} = \frac{324}{6}$$

$$x = 54$$

and

$$5x =$$

$$5(54) =$$

$$270$$

$$\begin{array}{r} 54 \\ 6 \overline{) 324} \\ \underline{-(30)} \\ 24 \\ \underline{-(24)} \\ 0 \text{ Rem} \end{array}$$

$$\begin{array}{r} 54 \\ \times 5 \\ \hline 270 \end{array}$$

$$(101) \quad x + 12 = 110$$

$$x + \cancel{12} - \cancel{12} = 110 - 12$$

$$x = 98$$

23

$$(102) \quad \frac{1}{4} \div \frac{5}{6} =$$

$$\frac{1}{4} \cdot \frac{6}{5} =$$

$$\frac{1}{\cancel{2} \cdot \cancel{2}} \cdot \frac{\cancel{2} \cdot 3}{5} =$$

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

$$(103) \quad 8b - 6 = 9 - 7b \quad \text{Is } b=1 \text{ a solution?}$$

$$8(1) - 6 = 9 - 7(1)$$

$$8 - 6 = 9 - 7$$

$$2 = 2$$

YES

$$(104) \quad \frac{2}{3} + \frac{1}{6} =$$

$$\frac{2}{3} \left(\frac{2}{2} \right) + \frac{1}{6} =$$

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

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

$$\frac{5}{6} =$$

$$\begin{aligned} 3 &= 3 \\ 6 &= 2 \cdot 3 \\ \hline \text{LCD} &= 2 \cdot 3 \\ &= 6 \end{aligned}$$

$$(105) \quad \frac{6}{8} - \frac{1}{9} =$$

$$\begin{array}{l} 8 = 2 \cdot 2 \cdot 2 \\ 9 = 3 \cdot 3 \\ \hline \text{LCD} = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \\ = 72 \end{array}$$

24

$$\frac{6}{8} \left(\frac{9}{9} \right) - \frac{1}{9} \left(\frac{8}{8} \right) =$$

$$\frac{54}{72} - \frac{8}{72} =$$

$$\frac{54 - 8}{72} =$$

$$\frac{46}{72} =$$

$$2 \cdot 23$$

$$\begin{array}{r} 2 \overline{)46} \\ 4 \\ \hline 23 \overline{)23} \\ 23 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 2 \overline{)72} \\ 4 \\ \hline 2 \overline{)36} \\ 36 \\ \hline 2 \overline{)18} \\ 18 \\ \hline 3 \overline{)9} \\ 9 \\ \hline 3 \overline{)3} \\ 3 \\ \hline 1 \end{array}$$

$$\frac{2 \cdot 2 \cdot 2 \cdot 3 \cdot 3}{2 \cdot 2 \cdot 2 \cdot 3 \cdot 3}$$

$$\frac{23}{36} =$$

$$(106) \quad \frac{7}{9} \div \frac{3}{4} - \frac{4}{9} =$$

$$\frac{7}{9} \cdot \frac{4}{3} - \frac{4}{9} =$$

$$\frac{28}{27} - \frac{4}{9} =$$

$$\frac{28}{27} - \frac{4}{9} \left(\frac{3}{3} \right) =$$

$$\frac{28}{27} - \frac{12}{27} =$$

$$\frac{28 - 12}{27} =$$

$$\frac{16}{27} =$$

$$\begin{array}{r} 3 \overline{)27} \\ 27 \\ \hline 3 \overline{)9} \\ 9 \\ \hline 3 \overline{)3} \\ 3 \\ \hline 1 \end{array} \quad \begin{array}{r} 3 \overline{)9} \\ 9 \\ \hline 3 \overline{)3} \\ 3 \\ \hline 1 \end{array}$$

$$\begin{array}{l} 27 = 3 \cdot 3 \cdot 3 \\ 9 = 3 \cdot 3 \\ \hline \text{LCD} = 3 \cdot 3 \cdot 3 \\ = 27 \end{array}$$

$$\textcircled{107} \quad \frac{\frac{2}{7}}{\frac{1}{5}} =$$

$$\frac{2}{7} \cdot \frac{5}{1} =$$

$$\frac{10}{7} =$$

25

$$\textcircled{108} \quad \frac{\frac{5}{3} - \frac{5}{7}}{\frac{8}{5} - \frac{2}{7}} =$$

$$3 = 3$$

$$7 = 7$$

$$5 = 5$$

$$\text{LCD} = 105 = 3 \cdot 5 \cdot 7$$

$$\frac{\left(\frac{5}{3} - \frac{5}{7}\right) \frac{105}{1}}{\left(\frac{8}{5} - \frac{2}{7}\right) \frac{105}{1}} =$$

$$\frac{\frac{5(105)}{3} - \frac{5(105)}{7}}{\frac{8(105)}{5} - \frac{2(105)}{7}} =$$

$$\frac{5(35) - 5(15)}{8(21) - 2(15)} =$$

$$\frac{175 - 75}{168 - 30}$$

$$\frac{100}{138} =$$

$$\frac{2(50)}{2(69)} =$$

$$\frac{50}{69} =$$

$$\textcircled{109} \quad \frac{4 + \frac{2}{x}}{\frac{x}{3} + \frac{1}{6}} =$$

$$\text{LCD} = 6x$$

26

$$\left(\frac{\frac{4}{1} + \frac{2}{x}}{\frac{x}{3} + \frac{1}{6}} \right) \frac{6x}{1} = \frac{6x}{1}$$

$$\frac{24x}{1} + \frac{12x}{x} =$$

$$\frac{6x^2}{3} + \frac{6x}{6}$$

$$\frac{24x + 12}{2x^2 + x} =$$

$$\frac{12(2x + 1)}{\cancel{x}(2x + 1)} =$$

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

$$\textcircled{110} \quad \frac{2}{5}n = 6$$

$$5\left(\frac{2}{5}n\right) = 5(6)$$

$$2n = 30$$

$$\frac{2n}{2} = \frac{30}{2}$$

$$n = 15$$

$$\textcircled{111.} \quad -\frac{4}{9}y = -\frac{1}{4}$$

$$\frac{9}{-4} \left(-\frac{4}{9}y \right) = \frac{9}{-4} \left(-\frac{1}{4} \right)$$

$$\textcircled{y = \frac{9}{16}}$$



$$\textcircled{112.} \quad \frac{x+6}{7} = \frac{x+7}{8} \quad \text{cross multiply}$$

$$8(x+6) = 7(x+7)$$

$$8x + 48 = 7x + 49$$

$$8x + 48 - 48 = 7x + 49 - 48$$

$$8x = 7x + 1$$

$$8x - 7x = 7x + 1 - 7x$$

$$1x = 1$$

$$\textcircled{x = 1}$$

$$\textcircled{113.} \quad \frac{1}{2}x - \frac{2}{5}x = \frac{1}{1} \quad \textcircled{\text{LCD} = 10}$$

$$\frac{1x}{2}(10) - \frac{2x}{5}(10) = \frac{1}{1}(10)$$

$$1x(5) - 2x(2) = 1(10)$$

$$5x - 4x = 10$$

$$1x = 10$$

$$\textcircled{x = 10}$$

$$\textcircled{114} \quad \frac{4}{3}x + \frac{1}{2} = \frac{x}{6} + \frac{1}{4} \quad \textcircled{\text{LCD} = 12}$$

$$\frac{4x(12)}{3} + \frac{1(12)}{2} = \frac{x(12)}{6} + \frac{1(12)}{4}$$

$$4x(4) + 1(6) = x(2) + 1(3)$$

$$16x + 6 = 2x + 3$$

$$16x + \cancel{6} - \cancel{6} = 2x + 3 - 6$$

$$16x = 2x - 3$$

$$16x - 2x = 2x - 3 - 2x$$

$$14x = -3$$

$$\frac{14x}{14} = \frac{-3}{14}$$

$$\textcircled{x = -\frac{3}{14}}$$

28.

$$\textcircled{115} \quad -\frac{5}{6}x = \frac{4}{9} - \frac{1}{3} \quad \textcircled{\text{LCD} = 18}$$

$$-\frac{5}{6}x(18) = \frac{4}{9}(18) - \frac{1}{3}(18)$$

$$-5x(3) = 4(2) - 1(6)$$

$$-15x = 8 - 6$$

$$-15x = 2$$

$$\frac{-15x}{-15} = \frac{2}{-15}$$

$$\textcircled{x = -\frac{2}{15}}$$

$$\textcircled{116} \quad \frac{x}{4} = \frac{x}{9} + \frac{9}{4} \quad \text{LCD} = 36$$

$$\frac{x}{4}(36) = \frac{x}{9}(36) + \frac{9}{4}(36)$$

$$x(9) = x(4) + 9(9)$$

$$9x = 4x + 81$$

$$9x - 4x = 4x + 81 - 4x$$

$$5x = 81$$

$$\frac{5x}{5} = \frac{81}{5}$$

$$x = \frac{81}{5}$$

29

$$\textcircled{117} \quad 7.07 + 0.52 =$$

$$\textcircled{7.59 =}$$

$$\begin{array}{r} 7.07 \\ + 0.52 \\ \hline 7.59 \end{array}$$

$$\textcircled{118} \quad 499.27 + 7.65 =$$

$$\textcircled{506.92 =}$$

$$\begin{array}{r} 499.27 \\ + 7.65 \\ \hline 506.92 \end{array}$$

$$\textcircled{119} \quad 18.43 - 13.919 =$$

$$\textcircled{4.511 =}$$

$$\begin{array}{r} 18.430 \\ - 13.919 \\ \hline 4.511 \end{array}$$

$$\textcircled{120} \quad 13.62 - 2.188 =$$

$$\textcircled{11.432 =}$$

$$\begin{array}{r} 13.620 \\ - 2.188 \\ \hline 11.432 \end{array}$$

$$(121) \quad 7.719 - 3.18 =$$
$$\quad \quad \quad 4.539 =$$

$$\begin{array}{r} 7.719 \\ -3.180 \\ \hline 4.539 \end{array}$$

30.

$$(122) \quad X+z \text{ Eval if } X=7.4, z=0.87$$

$$(7.4) + (0.87) =$$

$$7.4 + 0.87 =$$

$$\quad \quad \quad 8.27 =$$

$$\begin{array}{r} 7.40 \\ +0.87 \\ \hline 8.27 \end{array}$$

$$(123) \quad Y-X+z \text{ Eval if } X=3.6, Y=5, z=0.80$$

$$(5) - (3.6) + (0.80) =$$

$$5 - 3.6 + 0.80 =$$

$$1.40 + 0.80 =$$

$$\quad \quad \quad 2.20 =$$

$$\begin{array}{r} 5.00 \\ -3.60 \\ \hline 1.40 \end{array} \quad \begin{array}{r} 1.40 \\ +0.80 \\ \hline 2.20 \end{array}$$

$$(124) \quad -7.55x + (-0.17x) =$$

$$-7.55x - 0.17x =$$

$$\quad \quad \quad -7.72x =$$

$$\begin{array}{r} 7.55 \\ 0.17 \\ \hline 7.72 \end{array}$$

$$(125) \quad 30.1y + 5.9 - 15.8y - 17 =$$

$$\quad \quad \quad 14.3y - 11.1 =$$

$$\begin{array}{r} 30.1 \\ -15.8 \\ \hline 14.3 \end{array} \quad \begin{array}{r} 17.0 \\ -5.9 \\ \hline 11.1 \end{array}$$

$$(126) \quad 0.07 * 0.5 =$$

$$\quad \quad \quad 0.035 =$$

$$\begin{array}{r} 0.07 \\ \times 0.5 \\ \hline 035 \\ 000 \\ \hline 0.035 \end{array}$$

(127) $(13.75)(0.0058) =$

$.079750 =$

~~13.75~~
13.75
x 0.0058

11000
6875

0.079750

(128) $\frac{x}{42} = \frac{5}{14}$

Cross mult

$14(x) = 42(5)$

$14x = 210$

$\frac{14x}{14} = \frac{210}{14}$

$x = 15$

~~↔~~ 1
42
x 5

210
2 15
14 | 210
 (14)

 70
 70
 0 rem



(129) $\frac{x}{51} = \frac{4}{17}$

Cross mult

$17(x) = 51(4)$

$17x = 204$

$\frac{17x}{17} = \frac{204}{17}$

$x = 12$

~~↔~~ 51
x 4

204
12
17 | 204
 (17)

 34
 34
 0 rem

7

(130) $\frac{4}{x} = \frac{20}{10}$ cross mult ~~↔~~

$$10(4) = 20(x)$$

$$40 = 20x$$

$$\frac{40}{20} = \frac{20x}{20}$$

$$2 = x$$

32

(131) $\frac{35}{x} = \frac{7}{\frac{1}{5}}$ cross mult ~~↔~~

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

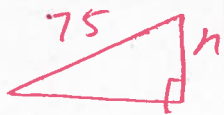
$$\frac{35(7)}{1} \left(\frac{1}{5}\right) = 7x$$

$$7 = 7x$$

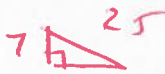
$$\frac{7}{7} = \frac{7x}{7}$$

$$1 = x$$

(132)



$$\frac{n}{75} = \frac{7}{25}$$

 cross mult ~~↔~~

$$\begin{array}{r} 3 \\ 75 \\ \times 7 \\ \hline 525 \end{array}$$

$$25(n) = 75(7)$$

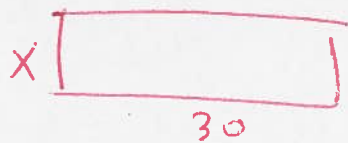
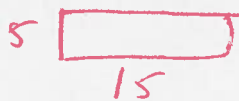
$$25n = 525$$

$$\frac{25n}{25} = \frac{525}{25}$$

$$n = 21$$

$$\begin{array}{r} 21 \\ 25 \overline{) 525} \\ \underline{-(50)} \\ 25 \\ \underline{-(25)} \\ 0 \end{array}$$

133



$$\frac{5}{15} = \frac{x}{30}$$

cross mult
↔

33

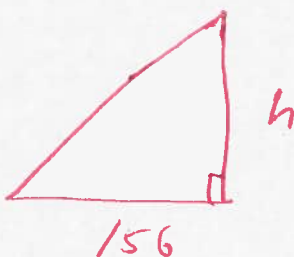
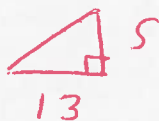
$$5(30) = 15(x)$$

$$150 = 15x$$

$$\frac{150}{15} = \frac{15x}{15}$$

$$10 = x$$

134



$$\frac{5}{13} = \frac{h}{156}$$

cross mult
↔

$$\begin{array}{r} 2 \ 3 \\ 156 \\ \hline 5 \\ 780 \end{array}$$

$$5(156) = 13(h)$$

$$780 = 13h$$

$$\frac{780}{13} = \frac{13h}{13}$$

$$= h$$

$$60 = h$$

$$\begin{array}{r} 60 \\ 13 \overline{) 780} \\ \underline{-(78)} \\ 0 \\ \underline{-(0)} \\ 0 \end{array}$$

135 write as a decimal

40%

.40

136 write as a percent

0.568

56.8%

(137) Write the percent as a fraction in lowest terms

60%

$$\frac{60}{100} =$$

$$\frac{\cancel{20}(3)}{\cancel{20}(5)} =$$

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

39

(138) What is 45% of 500?

$$\frac{45}{100} = \frac{x}{500} \quad \text{cross multiply}$$

$$45(500) = 100(x)$$

$$22500 = 100x$$

$$\frac{22500}{100} = \frac{100x}{100}$$

$$225 = x$$

$$\begin{array}{r} 45 \\ \times 500 \\ \hline 22500 \end{array}$$

(139) What is 7% of 9900?

$$\frac{7}{100} = \frac{x}{9900} \quad \text{cross mult}$$

$$7(9900) = 100(x)$$

$$69300 = 100x$$

$$\frac{69300}{100} = \frac{100x}{100}$$

$$693 = x$$

$$\begin{array}{r} 7 \\ \times 9900 \\ \hline 69300 \end{array}$$

(140) What percent of 50 is 12?

$$\frac{12}{50} = \frac{x}{100} \quad \text{cross mult}$$

$$12(100) = 50(x)$$

$$1200 = 50x$$

$$\frac{1200}{50} = \frac{50x}{50}$$

$$24 = x$$

$$24\% = x$$

$$\begin{array}{r} 24 \\ 50 \overline{) 1200} \\ \underline{-(100)} \\ 200 \\ \underline{-(200)} \\ 0 \end{array}$$

35

(141) 80 is 20% of what?

$$\frac{80}{x} = \frac{20}{100} \quad \text{cross mult}$$

$$80(100) = 20(x)$$

$$8000 = 20x$$

$$\frac{8000}{20} = \frac{20x}{20}$$

$$400 = x$$

(142)

$$\frac{x}{50} = \frac{70}{100} \quad \text{cross mult}$$

$$100(x) = 50(70)$$

$$100x = 3500$$

$$\frac{100x}{100} = \frac{3500}{100}$$

$$x = 35$$

$$\textcircled{143} \quad \frac{15}{100} = \frac{x}{118800}$$

Cross Mult
~~↔~~

$$15(118800) = 100(x)$$

$$1782000 = 100x$$

$$\frac{1782000}{100} = \frac{100x}{100}$$

$$\textcircled{17820 = x}$$



$$\textcircled{144} \quad \frac{6}{100} = \frac{43}{x}$$

Cross Mult
~~↔~~

$$6(x) = 100(43)$$

$$6x = 4300$$

$$\frac{6x}{6} = \frac{4300}{6}$$

$$x = 716.66666$$

$$\textcircled{x = 717} \quad \text{round}$$

$$\textcircled{145} \quad \frac{30}{100} = \frac{x}{330}$$

Cross Mult
~~↔~~

$$30(330) = 100(x)$$

$$9900 = 100x$$

$$\frac{9900}{100} = \frac{100x}{100}$$

$$\textcircled{99 = x}$$

$$\textcircled{146} \quad 3000 - .45(3000) =$$

$$3000 - 1350 =$$

$$\textcircled{1650 =}$$

(147) Find the supplement of 73°

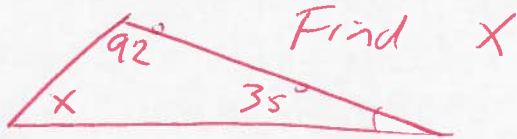
$$x + 73 = 180$$

$$x + 73 - 73 = 180 - 73$$

$$x = 107$$

37

(148)



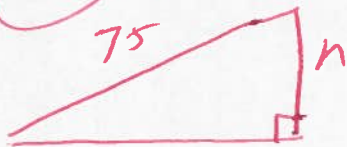
$$x + 92 + 35 = 180 \quad \text{always}$$

$$x + 127 = 180$$

$$x + 127 - 127 = 180 - 127$$

$$x = 53$$

(149) For the similar triangles find n



$$\frac{n}{75} = \frac{7}{25}$$

cross multiply

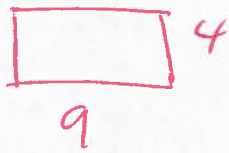
$$25(n) = 75(7)$$

$$25n = 525$$

$$\frac{25n}{25} = \frac{525}{25}$$

$$n = 21$$

150. Find the perimeter.



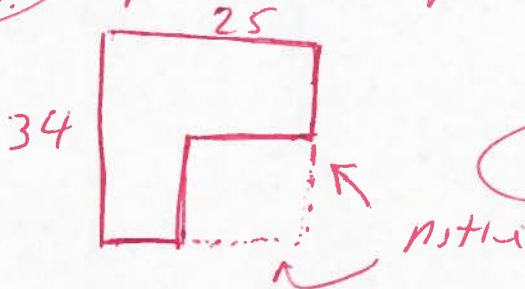
$L = 9$ $W = 4$

$$P = 2L + 2W$$
$$P = 2(9) + 2(4)$$
$$P = 18 + 8$$

38

$P = 26$

151. Find the perimeter.

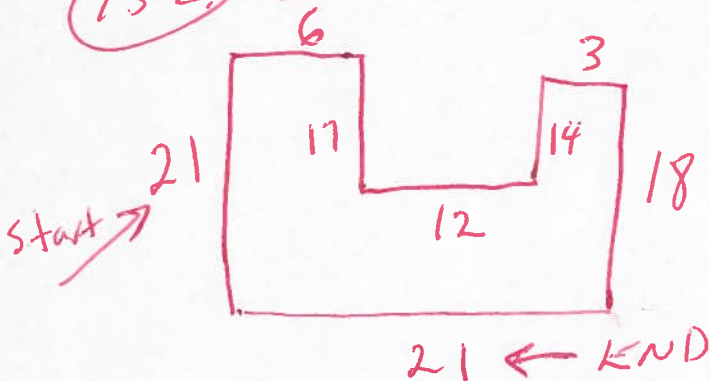


$L = 34$ $W = 25$

$$P = 2L + 2W$$
$$P = 2(34) + 2(25)$$
$$P = 68 + 50$$

$P = 118$

152. Find the perimeter.



$$P = 21 + 6 + 17 + 12 + 14 + 3 + 18 + 21$$

$P = 112$

$$\textcircled{153} \quad \frac{(19)(13)}{(3)(3)} (13.50) =$$

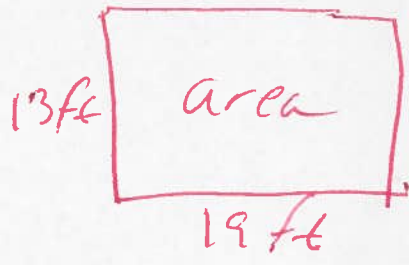
$$\frac{247}{9} (13.50) =$$

$$\frac{3334.5}{9} =$$

$$\textcircled{\$ 370.50 =}$$

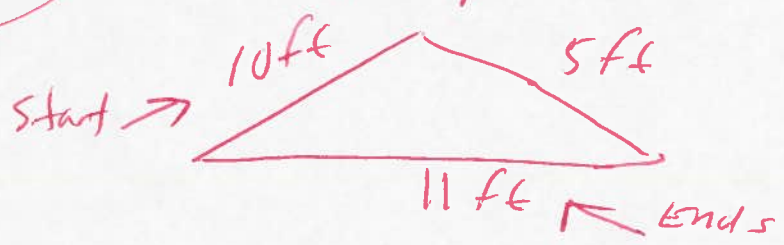
$\$ 3.50$ per
Square Yard

room



$39\frac{1}{2}$

$\textcircled{154}$ Find the perimeter.



$$P = 10 + 5 + 11$$

$$\textcircled{P = 26}$$

$\textcircled{155}$ Find the mean (average).

$$\frac{18 + 2 + 29 + 18}{4} =$$

$$\frac{67}{4} =$$

$$\textcircled{16.75 =}$$

$\textcircled{17 =}$ round

156 Find the mean

$$\frac{8.4 + 8.8 + 6.6 + 8.8 + 6.4}{5} =$$

$$\frac{39}{5} =$$

$$7.8 =$$

40,

157. Find the mean.

$$\frac{1450 + 4460 + 6940 + 7240 + 1880 + 6250}{6} =$$

$$\frac{28220}{6} =$$

$$4703.33333 =$$

$$\$ 4703 = \text{Round}$$

158. $-3.3x = 13.2$

$$\frac{-3.3x}{-3.3} = \frac{13.2}{-3.3}$$

$$x = -4$$

$$159. \quad x + 7.1x = 234.9$$

$$1.00x + 7.1x = 234.9$$

$$8.1x = 234.9$$

$$\frac{8.1x}{8.1} = \frac{234.9}{8.1}$$

$$x = 29$$

41

$$160. \quad 1.1x - 4.5 = 0.5x - 2.34$$

$$1.1x - 4.5 + 4.5 = 0.5x - 2.34 + 4.5$$

$$1.1x = 0.5x + 2.16$$

$$1.1x - 0.5x = 0.5x + 2.16 - 0.5x$$

$$.6x = 2.16$$

$$\frac{.6x}{.6} = \frac{2.16}{.6}$$

$$x = 3.6$$

$$161. \quad -7x + 5 + 5x = -2x + 10$$

$$-2x + 5 = -2x + 10$$

$$-2x + 5 - 5 = -2x + 10 - 5$$

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

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

$$0 \neq 5$$

\emptyset OR $\{ \}$ OR Contradiction

NO
Solutions

$$(162) \quad 2(x+3) = (2x+6)$$

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

$$2x+6-6 = 2x+6-6$$

$$2x = 2x$$

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

$$0 = 0$$

42

All real numbers OR identity

$$(163) \quad P = 2L + 2W, \quad P = 28, \quad W = 9$$

$$28 = 2L + 2(9)$$

$$28 = 2L + 18$$

$$28 - 18 = 2L + 18 - 18$$

$$10 = 2L$$

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

$$5 = L$$

$$(164) \quad I = Prt, \quad I = 44.8, \quad P = 160, \quad r = 0.04$$

$$44.8 = 160(0.04)t$$

$$44.8 = 6.4t$$

$$\frac{44.8}{6.4} = \frac{6.4t}{6.4}$$

$$7 = t$$

$$(165) \quad C = \frac{5}{9}(F - 32), \quad F = 167$$

$$C = \frac{5}{9}(167 - 32)$$

$$C = \frac{5}{9}(135)$$

$$C = \frac{5}{1}(15)$$

$$C = 75$$

43.

$$(166) \quad S^d = P - 0.15P,$$

$$P = 36$$

$$S^d = 36 - 0.15(36)$$

$$S^d = 36 - 5.4$$

$$S^d = \$30.60$$

$$(167) \quad Y = 0.07X + 29, \quad X = 180$$

$$Y = 0.07(180) + 29$$

$$Y = 12.6 + 29$$

$$Y = \$41.60$$

$$(168) \quad Y = 1.85X + 2.55,$$

$$X = 9$$

$$Y = 1.85(9) + 2.55$$

$$Y = 16.65 + 2.55$$

$$Y = \$19.20$$