

$$\textcircled{1} \quad \begin{array}{r} x - 13 = -5 \\ +13 \quad +13 \\ \hline x = 8 \end{array}$$

$$\textcircled{2} \quad \begin{array}{l} x = 1^{\text{st}} \text{ integer} \\ x+1 = 2^{\text{nd}} \text{ c.i.} \\ x+2 = 3^{\text{rd}} \text{ c.i.} \end{array} \quad \begin{array}{|c|} \hline 6 \\ \hline 7 \\ \hline 8 \\ \hline \end{array}$$

$$1^{\text{st}} + 2^{\text{nd}} = 9 + \frac{3^{\text{rd}}}{2}$$

$$x + x + 1 = 9 + \frac{x+2}{2}$$

$$\textcircled{3} \quad \begin{array}{l} x = 1^{\text{st}} \text{ odd} \\ x+2 = 2^{\text{nd}} \text{ c.o.i.} \\ x+4 = 3^{\text{rd}} \text{ c.o.i.} \end{array}$$

$$2x + 1 = 9 + \frac{1}{2}x + 1$$

$$2x + 1 = 10 + \frac{1}{2}x$$

$$-\frac{1}{2}x \quad -\frac{1}{2}x$$

$$4(x) = 7(x+2) - 29$$

$$4x = 7x + 14 - 29$$

$$4x = 7x - 15$$

$$-7x \quad -7x$$

$$-3x = -15$$

$$x = 5$$

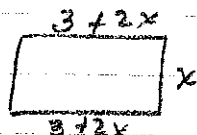
$$1.5x + 1 = 10$$

$$-1 \quad -1$$

$$1.5x = 9$$

$$\frac{1.5x}{1.5} = \frac{9}{1.5}$$

$$x = 6$$

$$\textcircled{4} \quad \begin{array}{l} x = \text{width} \\ 3 + 2x = \text{length} \end{array}$$


$$2x + 2(3 + 2x) = 96$$

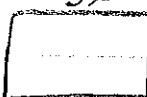
$$2x + 6 + 4x = 96$$

$$6x = 90$$

$$x = 15$$

width: 15
length: 33

$$\begin{array}{r} 30 \\ +66 \\ \hline 96 \checkmark \end{array}$$

$$\textcircled{5} \quad \begin{array}{l} \text{width} \\ 3x = \text{length} \end{array}$$


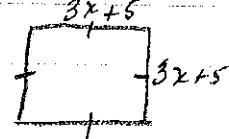
$$2x + 2(3x) = 72$$

$$2x + 6x = 72$$

$$8x = 72$$

$$x = 9$$

9 by 27

$$\textcircled{6} \quad \begin{array}{l} 3x+5 \\ 3x+5 \end{array}$$


$$4(3x+5) = 44$$

$$12x + 20 = 44$$

$$-20 \quad -20$$

$$12x = 24$$

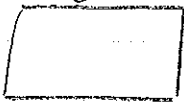
$$x = 6$$

Each side is 23 cm.

7 (same)

$$3 + 2x = \text{length}$$

8



$$x = \text{width}$$

$$2(3 + 2x) + 2(x) = 42$$

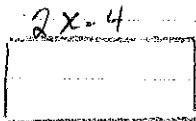
$$6 + 4x + 2x = 42$$

$$6x = 36$$

$$x = 6$$

9

width = x



5 by 6

6 by 15

$$2x - 4 = 1$$



$$x + 2$$

$$P = 24$$

$$2(2x - 4) + 2(x + 2) = 24$$

$$4x - 8 + 2x + 4 = 24$$

$$6x - 4 = 24$$

$$6x = 30$$

$$x = 5$$

10

$$1x + 2x + 3x + 4x + 5x = 225$$

x
 $5x$ add

smallest = 15

$$15x = 225$$

longest $5(15) = 75$

$$x = 15$$

$$\text{OR } x + 5x = 6x$$

$$6(15) = 90$$

sum: 90

11

$$r_p = 60 \rightarrow$$

$$t_p = x - 1.5$$

$$\rightarrow 4.5 - 1.5 = 3 \text{ hours}$$

$$r_f = 40 \rightarrow$$

$$t_f = x$$

$$\rightarrow 4 \text{ hours } 30 \text{ min}$$

$$d_f = d_p$$

$$r_f \cdot t_f = r_p \cdot t_p$$

$$40(x) = 60(x - 1.5)$$

$$40x = 60x - 90$$

$$-60x \quad -60x$$

$$-20x = -90$$

$$\frac{-20x}{-20} = \frac{-90}{-20}$$

$$x = 4.5 \text{ hours}$$

12

$$r_s = 80$$

6:00 pm

$$\rightarrow t_s = x$$

$$d_s = d_f$$

$$80(x) = (100)(x - 3)$$

$$r_f = 100$$

9:00 pm

$$\rightarrow t_f = x - 3$$

$$80x = 100x - 300$$

$$-100x \quad -100x$$

$$-20x = -300$$

$$x = 15 \text{ hours}$$

At 9:00 am, the 2nd train catches up with the 1st.

$t_g = x+1$
 $t_{cb} = x$

$r_g = 200$
 $r_{cb} = 250$

$D_{going} = D_{coming\ back}$

$200(x+1) = 250(x)$

$200x + 200 = 250x$
 $-200x \quad -200x$

$x = 4 \text{ hours}$

$d_g = r \cdot t \rightarrow d = (5)(200)$
 $= 1000 \text{ miles}$

$\frac{200}{50} = \frac{50x}{50}$
 $4 = x$

or
 $d_{cb} = r \cdot t = (250)(4) = 1000 \text{ miles}$

(14) $x = \text{measure of first angle} \rightarrow 31$
 $x+25 = \text{" " 2nd angle} \rightarrow 56$
 $3x = \text{" " 3rd angle} \rightarrow 93$

largest? \downarrow
 93°

$x + x + 25 + 3x = 180$
 $5x + 25 = 180$
 $5x = 155$
 $x = 31$

31
 56
 93
 $180 \checkmark$

(15) $2x + 3x + 5x = 180$
 $10x = 180$
 $x = 18$

36
 54
 $+ 90$
 $180 \checkmark$

smallest:
 36

(16) * Supplementary angles add up to 180° .
 * Complimentary angles add up to 90° .

$x = 2nd$
 $30 + 2x = \text{one supp. angle}$

$x + 30 + 2x = 180$
 $3x = 150$
 $x = 50$

$30 + 2x = 130$
 $50 \text{ and } 130$

Triangle

(17)

1st angle $\Rightarrow x$	28	28
2nd angle $\Rightarrow 3x - 2$	82	$\frac{x3}{84}$
3rd angle $\Rightarrow 14 + 2(x)$	70	$\frac{56}{14}$
$x + 3x - 2 + 14 + 2x = 180$	180 ✓	0
$6x + 12 = 180$		
$-12 \quad -12$		
$6x = 168$		
$x = 28$		

(18)

$$\underbrace{x} + 30 + \underbrace{4x} + \underbrace{10x} = 180$$

$$15x + 30 = 180$$

$$15x = 150$$

$$x = 10$$

40°
 40°
 100°

(19)

$$2x + 3x + 4x = 180$$

$$9x = 180$$

$$x = 20$$

40°
 60°
 80°

(20)

$$\frac{2}{3}n \leq -6$$

$$\frac{3}{2} \left(\frac{2}{3}n \right) \leq \frac{(-6)}{1} \frac{3}{2}$$

$n \leq -9$

(21)

$x = 1st \text{ int.}$ $9, 10$
 $x+1 = 2nd \text{ e.i.}$ sum = 19

$$x + x + 1 \geq 20$$

$$2x + 1 \geq 20$$

$$2x \geq 19$$

(22)

$x = \text{grade on test \#4}$

$$\frac{80 + 76 + 95 + x}{4} \geq 85$$

$$\frac{251 + x}{4} \geq 85$$

$$x \geq 9.5$$

$$\frac{4(251 + x)}{4} \geq \frac{(85)4}{4}$$

$$-85 + x \geq 340$$

$$-251 \quad -251$$

$x \geq 89$

(23) $x = \text{number of miles}$

$$94 + .12(x) \leq 130$$

$$\begin{array}{r} 94 + .12x \leq 130 \\ -94 \qquad -94 \end{array}$$

$$\begin{array}{r} .12x \leq 36 \\ \underline{.12} \qquad \underline{.12} \end{array}$$

$$\begin{array}{r} 300 \\ .12 \overline{) 360.0} \\ \underline{36} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

$$\boxed{x \leq 300 \text{ miles}}$$

(24) $x = \text{pt. in 4th game}$

$$\frac{20 + 15 + 18 + x}{4} \geq 16$$

$$\begin{array}{r} 4 \left(\frac{53 + x}{4} \right) \geq (16) 4 \\ \underline{53 + x} \geq 64 \\ -53 \qquad -53 \end{array}$$

$$\boxed{x \geq 11 \text{ points}}$$

(25) $x = \text{Amount of } \overset{\text{Jordan's}}{\text{sales}}$

$$1200 + 5\% \text{ of } x \geq 1500$$

$$\begin{array}{r} 1200 + .05(x) \geq 1500 \\ -1200 \qquad -1200 \end{array}$$

$$\begin{array}{r} .05x \geq 300 \\ \underline{.05} \qquad \underline{.05} \end{array}$$

$$\boxed{x \geq \$6000}$$

(26) $7 + \frac{x}{2} \geq 2x - 1$

$$\begin{array}{r} 7 + \frac{1}{2}x \geq 2x - 1 \\ -2x \qquad -2x \end{array}$$

$$\begin{array}{r} -1.5x + 7 \geq -1 \\ -7 \qquad -7 \end{array}$$

$$\begin{array}{r} -1.5x \geq -6 \\ \underline{-1.5} \quad \underline{0} \quad \underline{-1.5} \end{array}$$

$$\boxed{x \leq 4}$$

$x = 5^{\text{th}}$ test grade

$$(27) \frac{70 + 80 + 85 + 95 + x}{5} > 80$$

$$\cancel{5} \left(\frac{330 + x}{\cancel{5}} \right) > (80) \cancel{5}$$

$$\begin{array}{r} 330 + x > 400 \\ -330 \quad -330 \end{array}$$

$$\boxed{x > 70}$$

$$(28) 15 \left(\frac{x+2}{3} \right) = \left(\frac{x-4}{5} + 1 \right) 15$$

$$5(x+2) = 3\left(\frac{x-4}{5} + 1\right) 15$$

$$5x + 10 = 3x - 12 + 15$$

$$\begin{array}{r} 5x + 10 = 3x + 3 \\ -3x \quad -3x \end{array}$$

$$\begin{array}{r} 2x + 10 = 3 \\ -10 \quad -10 \end{array}$$

$$2x = -7$$

$$\boxed{x = -3,5}$$

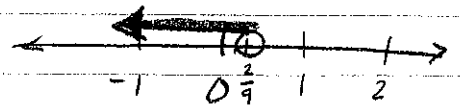
$$(29) -8x - 2 > -2x + 3x - 4$$

$$\begin{array}{r} -8x - 2 > x - 4 \\ -x \quad -x \end{array}$$

$$\begin{array}{r} -9x - 2 > -4 \\ +2 \quad +2 \end{array}$$

$$\begin{array}{r} -9x > -2 \\ -9 \quad -9 \end{array}$$

$$\boxed{x < \frac{2}{9}}$$



$$(30) 3 \left(\frac{2-x}{3} \right) < 6 \quad | \cdot 3$$

$$- \frac{2-x}{3} < 18$$

$$-x < 16$$

$$\boxed{x > -16}$$

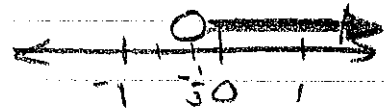


$$(31) 7 + \frac{1}{2}x \geq 2x - 1$$

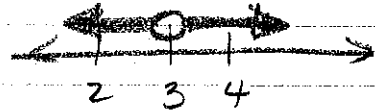
(same as #26) \therefore

$$(32) -\frac{1}{3} < x$$

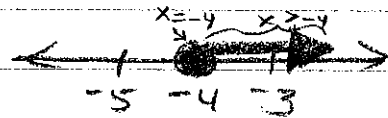
$$x > -\frac{1}{3}$$



$$(33) x \neq 3$$



$$(34) x \geq -4$$



$$(35) x \leq 0$$

