

① 1, 2, 3, → 12

SUM OF ARITHMETIC SERIES

⇒ 1 + 2 + 3... 12 ⇒ $S_N = \frac{N}{2} (a_1 + a_n)$

$N=1$ $d=1$ $N=12$

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

$= 6(13) = \boxed{78}$

ⓑ

② $40 \cdot \frac{22}{100} = 4(2.2) = 8.80$

$22\% = \frac{22}{100}$

+ 40.00

$\boxed{\$48.80}$ ⓐ

③ Direct Variation $y = mx$

(800, 112)
Sales, Commission

$C = mS \quad \therefore 112 = m800$

$\frac{112}{800} = m$

$\frac{14}{100} = \frac{28}{200} = \frac{56}{400} = m$

$\therefore C = \frac{14}{100}(S)$

If $S = 1400$

$C = \frac{14}{100} \cdot 1400 = \boxed{\$196}$ ⓑ

$$\textcircled{4} \quad 7 + 3x = 22 \quad 2x = ?$$

$$3x = 15$$

$$x = 5$$

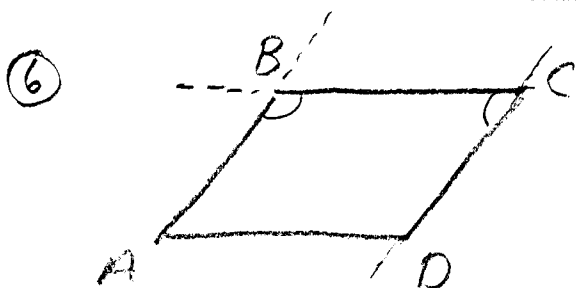
$$\therefore \boxed{2x = 10} \textcircled{G}$$

$$\textcircled{5} \quad C = 30d + .285(m) \quad .285 = 28.5 \text{¢}$$

$$C = 30(5) + \frac{285}{1000} \cdot 350$$

$$C = 150 + \frac{399}{4} = \frac{600}{4} + \frac{399}{4} = \frac{999}{4}$$

$$\boxed{C = \$249.75} \textcircled{C}$$



CONSECUTIVE INTERIOR \angle S
ARE SUPPLEMENTARY
(ADD TO 180°)

\textcircled{F}

⑦ $\frac{4}{15}, \frac{1}{12}, \frac{3}{8}$

$\begin{array}{ccc} \wedge & \wedge & \wedge \\ \textcircled{3} \textcircled{5} & \textcircled{2} 6 & \textcircled{2} 4 \\ \checkmark \checkmark & \checkmark & \times \\ & \textcircled{2} \textcircled{3} & \textcircled{2} \textcircled{2} \\ & \checkmark \times & \times \checkmark \end{array}$

$$3 \cdot 5 \cdot 2 \cdot 2 \cdot 2$$

$$15 \cdot 4 \cdot 2 = \boxed{120 = \text{LCD}} \quad \textcircled{B}$$

⑧ $(2x^4y)(3x^5y^8) = \boxed{6x^9y^9} \quad \textcircled{H}$

⑨ $\boxed{|12a - 18b| = 36} \quad \textcircled{C}$

⑩ $x > 1 \quad \boxed{\sqrt{x} > \sqrt{1} \text{ LEAST}} \quad \textcircled{F}$

$$\sqrt{2x} > \sqrt{2}$$

$$\sqrt{x^2} > 1$$

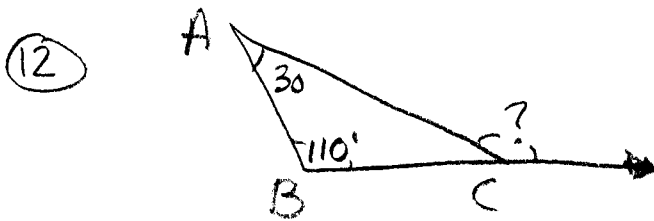
$$x\sqrt{x} > 1$$

$$x \cdot x > 1$$

⑪ $(a, b) \blacklozenge (c, d) = \frac{ac + bd}{ab - cd}$

$$(2, 1) \blacklozenge (3, 4) = \frac{2 \cdot 3 + 1 \cdot 4}{2 \cdot 1 - 3 \cdot 4} = \frac{6 + 4}{2 - 12}$$

$$= \frac{10}{-10} = \boxed{-1} \quad \textcircled{B}$$



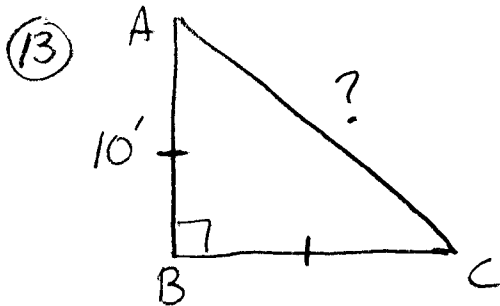
$$m\angle BAC = 30^\circ$$

$$m\angle ABC = 110^\circ$$

$$m\angle ACD = ?$$

Exterior \angle Theorem $\Rightarrow m\angle ACD = 110 + 30 = \boxed{140^\circ}$

Ⓔ



$$45-45-90 \Rightarrow \overline{AC} = \boxed{10\sqrt{2}}$$

Ⓔ

⑭ 400 Jelly Beans $\Rightarrow \frac{25}{100} = 100 \Rightarrow 100$ red

$$P(\text{NOT red}) = \frac{300}{400} = \boxed{\frac{3}{4}}$$

Ⓔ

⑮ $x^2 - 2x + 6 + (?) = 3x^2 + 7x$

$$\boxed{2x^2 + 9x - 6}$$

Ⓔ

⑯ $m_{\parallel} = ?$

$$8x + 9y = 3$$

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

$$y = -\frac{8}{9}x + \frac{1}{3}$$

$$\boxed{m_{\parallel} = -\frac{8}{9}}$$

Ⓔ

$$\textcircled{17} \quad (3, 6), (9, 4)$$

$$\left(\frac{3+9}{2}, \frac{6+4}{2} \right) = \boxed{(6, 5)} \textcircled{D}$$

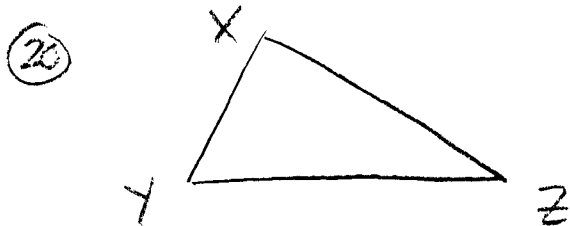
$$\textcircled{18} \quad y = x^2$$

$$\boxed{-y = -x^2} \textcircled{G}$$

$$\textcircled{19} \quad h(x) = 4x^2 - 5x$$

$$h(-3) = 4(-3)^2 - 5(-3)$$

$$4 \cdot 9 + 15 = \boxed{51} \textcircled{D}$$



$$\overline{XZ} > \overline{YZ} \therefore \boxed{m\angle Y > m\angle X}$$

\textcircled{F}

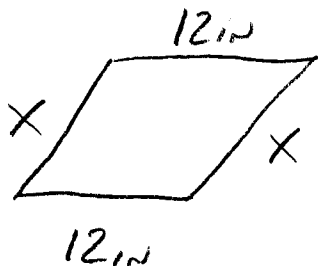
$$\textcircled{21} \quad |7(-3) + 2(4)| = |-21 + 8| = |-13| = \boxed{13} \textcircled{C}$$

$$\textcircled{22} \quad x > |y| \quad \text{or} \quad |y| < x$$

$$|-4| < x$$

$$4 < x \Rightarrow \boxed{x > 4} \textcircled{G}$$

23



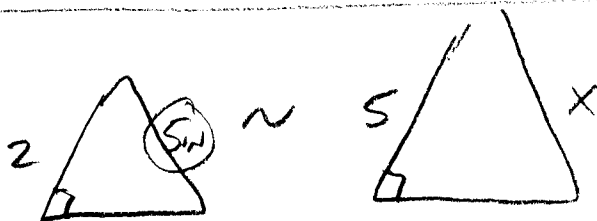
$$P = 72 \text{ in}$$

$$24 + 2x = 72$$

$$2x = 48 \therefore x = 24$$

\therefore 3 SIDES \Rightarrow 12, 24, 24 in (C)

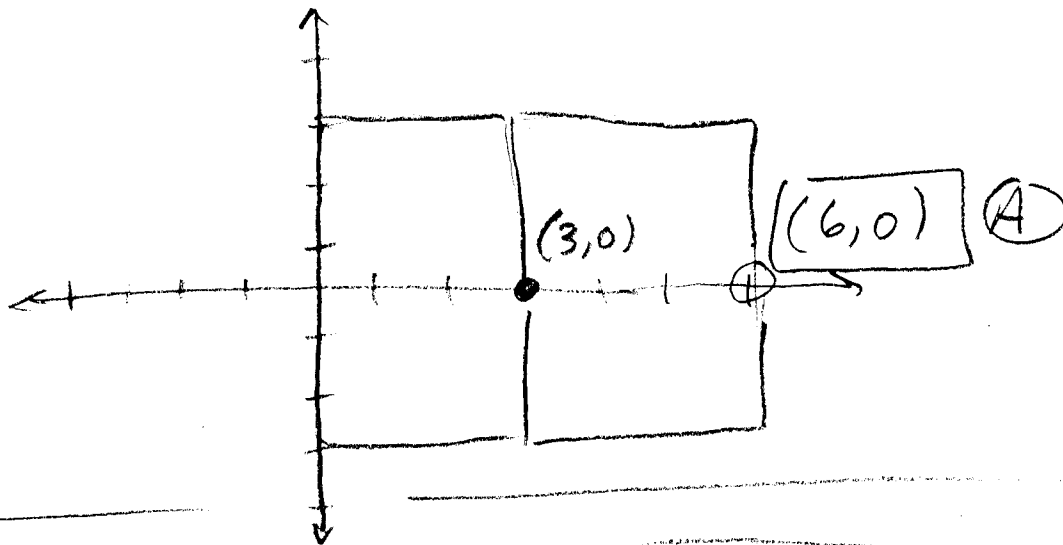
24



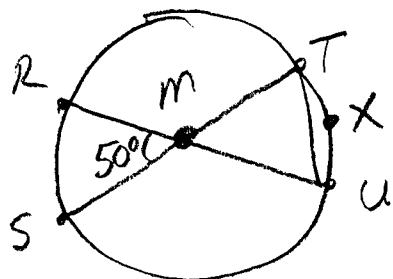
$$\frac{2}{5} = \frac{5}{x} \therefore 2x = 25$$

$$\boxed{x = 12.5 \text{ in}} \text{ (K)}$$

25



26



$\overline{RS} \neq \overline{SM}$ OTHERWISE
 $\Delta^{\circ} RMS$ AND $\Delta^{\circ} TMU$
 WOULD BE EQUILATERAL
 WITH 3 60° \angle s (K)

27) X boats made & sold

$$-(10^7 + 7000X) \Rightarrow \text{COST}$$

$$20000X \Rightarrow \text{REVENUE}$$

$$\therefore \boxed{13000X - 10^7 = \text{PROFIT}} \quad \text{(A)}$$

28) $2x^2 + 6x - 36 = 0$

$$2(x^2 + 3x - 18) = 0$$

$$\text{sum} \Rightarrow 3$$

$$\text{prod} \Rightarrow -18$$

$$\begin{array}{c} \wedge \\ -3 + 6 \end{array}$$

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

$$\therefore \boxed{X = \{3, -6\}} \quad \text{(G)}$$

29)

t	0	1	2	3	4	5	sec
x	10	14	18	22	26	30	ft

$$y = mx + b$$
$$b = 10$$

$$m \cong \frac{30-10}{5-0} = 4$$

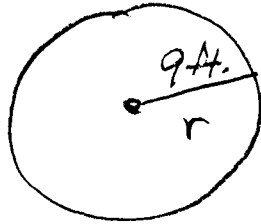
$$y = 4x + 10$$

or $\boxed{x = 4t + 10} \quad \text{(C)}$

30) EACH number must ↑ by 2 ⇒

$$2 \cdot 4 = \boxed{8} \text{ (J)}$$

31)

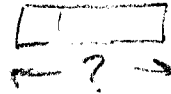
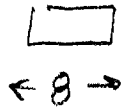
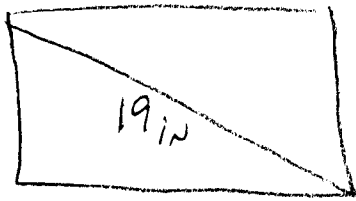
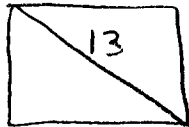


$$A = \pi r^2 = 3.14 (9)^2$$

$$= 3.14 (81)$$

$$\approx \boxed{254.3} \text{ (D)}$$

32)



$$\frac{13}{19} = \frac{8}{x}$$

$$\therefore x = \frac{8 \cdot 19}{13} \approx 11.69$$

$$\approx \boxed{12 \text{ in}} \text{ (G)}$$