

0824150000 022615000 TSI

001. Find the area of a rectangle with a length of $L = 8 + X$ and a width of $W = 8 - X$.

- A. $64 + X^2$ B. $64 + 16X - X^2$ C. $64 - X^2$ D. $64 + 8X - X^2$



002. One hog weighs 40 pounds more than another hog. If three times the weight of the little hog is the same as twice the weight of the big hog then what is the weight of the little hog?

- A. 90 B. 70 C. 80 D. 120

003. If a Texas wild hog can run M miles in 60 minutes then how many miles will the hog run in 80 minutes?

- A. $4M/5$ B. $3M/4$ C. $4M/3$ D. $4M$

004. If a square has a side of $2X$ and an area of 144 square miles then what is X ?

- A. 10 B. 11 C. 6 D. 20

005. If Joe has a total of 20 nickels and dimes and the value of the coins is \$1.40 then how many nickels and dimes does he have?

- A. 1 nickel and 19 dimes B. 8 nickels and 12 dimes
C. 12 nickels and 8 dimes D. 10 nickels and 10 dimes

006. Patrick bought a total of 15 slices of regular and stuffed crust pizza slices. The regular pizza slice cost \$2.00 each and the stuffed crust pizza slice cost \$3.00 each. If he paid \$35.00 for all the pizza slices then how many of each did he buy?

- A. 11 regular and 4 stuffed B. 1 regular and 14 stuffed
C. 10 regular and 5 stuffed D. 5 regular and 10 stuffed

007. If $XY=K$ and $X=4$ when $Y=6$ then find Y if $X=2$.

- A. $Y = 10$ B. $Y = 20$ C. $Y = 12$ D. $Y = 13$

008. Find the mean (average) of the three angles inside of a right triangle.

- A. 40 B. 50 C. 60 D. 80

009. The probability of rain is $\frac{1}{4}$. find the probability of no rain in two days in a row.

- A. $\frac{1}{6}$ B. $\frac{3}{16}$ C. $\frac{9}{16}$ D. $\frac{15}{16}$

010. At a book store a book is on sale for 20% off. If the original price of the book was B , then what is the sale price in terms of B ?

- A. $.60B$ B. $.90B$ C. $.80B$ D. $.50B$

011. The length of a rectangular carpet is 6 feet more than the width. If the area is 40ft^2 then find the length and the width.

- A. $L=10, W=2$ B. $L=20, W=2$ C. $L=10, W=4$ D. $L=8, W=5$

012. Solve $2W(W - 4) = 0$

- A. $W=0$ or $W=-4$ B. $W= -2$ or $W=4$ C. $W=0$ or $W= 4$ D. $W=2$ or $W =-4$

013. Find C if $C = P + .065P$ and $P=99.99$

- A. 106.48939 B. 106.48932 C. 106.48935 D. 106.48936



014. If a box has 4 blue, 5 green, and 3 red counting hogs then what is the probability of choosing a blue hog at random?

- A. $1/12$ B. $1/2$ C. $1/3$ D. $1/6$

015. Find the Y-intercept for $Y = (X - 4)^2$

- A. (0,-16) B. (-16,0) C. (0,16) D. (4,0)

016. Find the X-intercepts of $Y = -16X^2 + 32X$

- A. (0,0), (-16,32) B. (0,-16), (0,32) C. (0,0), (2,0) D. (0,0), (-2,0)

017. Solve $8X^2 - 7X - 1 = 0$

- A. $\{1/8, 1\}$ B. $\{-1/8, -1\}$ C. $\{-1/8, 1\}$ D. $\{1/8, -1\}$

018. Solve $X^2 - X - 12 = 0$

- A. $\{3,4\}$ B. $\{-3,-4\}$ C. $\{-3,4\}$ D. $\{3,-4\}$

019. Find C if $(3X - 2)(4X + C) = 12X^2 + 7X - 10$

- A. C=3 B. C=4 C. C=5 D. C=6

020. Solve $X^2 - 6 = X$

- A. $\{-2,-3\}$ B. $\{2,-3\}$ C. $\{-2,3\}$ D. $\{2,3\}$

021. Solve $X + 3Y = 11$

$$4X - y = 5$$

- A. (-2,3) B. (-2,3) C. (2,3) D. (-2,-3)



022. If on a map 1 inch equals 5 miles then 30 inches equals how many miles.

- A. 120 miles B. 140 miles C. 150 miles D. 180 miles

023. Find V if $V = \pi r^2 H$, $r = 6a$, and $H = 2a + 5$

- A. $V = 72\pi a^3$ B. $V = 180\pi a^2$ C. $V = 72\pi a^3 + 180\pi a^2$ D. $V = 72\pi a^3 + 180\pi a$

024. Find $\frac{1}{4}$ of $(16X + 20)$

- A. $4X + 15$ B. $4X - 20$ C. $4X + 5$ D. $4X + 10$

025. Factor the GCF $14X^3 + 8X^2 + 12XY^2$

- A. $2X(X + Y)$ B. $2X(7X^2 + 8X + 12Y^2)$ C. $2X(7X^2 + 4X + 6Y^2)$ D. $2X(7X^2 + 4X + 12Y^2)$

026. Factor $3X^3 + 9X^2 + 6X$

- A. $3X(X + 1)(X + 6)$ B. $3X(X - 1)(x - 2)$ C. $3X(X + 1)(X + 2)$ D. $6X(X + 1)(X + 2)$

027. Factor the GCF $14X^3 + 6X^2 + 8X$

- A. $2X(X + Y)$ B. $2X(7X^2 + 3X + 8)$ C. $2X(7X^2 + 3X + 4)$ D. $2X(7X^2 + 3X + 1)$

028. Factor the GCF $15X + 5$

- A. $5(3X + 5)$ B. $5(2X + 1)$ C. $5(3X + 1)$ D. $5(5X + 1)$

029. Factor the GCF $8X^3Y - 2X^2Y^2$

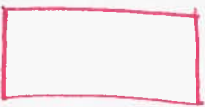
- A. $2XY(4 - Y)$ B. $2X^2(4 - Y)$ C. $2X^2Y(4 - Y)$ D. $2Y^2Y(2 - Y)$



030. Solve $7Y + 2 = 15 + 3Y$

- A. $Y=4/13$ B. $Y=-4/13$ C. $Y=13/4$ D. $Y=-13/4$



①  $w = 8 - x$
 $L = 8 + x$

$$A = LW$$

$$A = (8 + x)(8 - x)$$

$$A = 64 - 8x + 8x - x^2$$

$$= 64 - x^2$$

TSI
 Word problem
 Step by Step solutions

② $x = \text{little hog}$

$$x + 40 = \text{Big hog}$$

$$3(x) = 2(x + 40)$$

$$3x = 2x + 80$$

$$3x - 2x = 2x + 80 - 2x$$

$$x = 80 \text{ little hog}$$

③ $\frac{m}{60} = \frac{x}{80}$

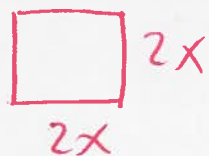
$$80\left(\frac{m}{60}\right) = 80\left(\frac{x}{80}\right)$$

$$\frac{80m}{60} = x$$

$$\frac{20(4)m}{20(3)} = x$$

$$\frac{4m}{3} = x$$

4.



$$A = Lw$$

$$144 = (2x)(2x)$$

$$144 = 4x^2$$

$$\frac{144}{4} = \frac{4x^2}{4}$$

$$36 = x^2$$

$$\pm\sqrt{36} = \sqrt{x^2}$$

$$\pm 6 = x$$

$$\cancel{x = -6} \text{ OR } x = 6$$

5. $N + D = 20$

$$.05N + .10D = 1.40$$

$$(N + D = 20) (-.10)$$

$$(.05N + .10D = 1.40) (1)$$

$$-.10N - .10D = -2.00$$

$$.05N + .10D = 1.40$$

$$-.05N = -.60$$

$$\frac{-.05N}{-.05} = \frac{-.60}{-.05}$$

$$N = 12$$

nickels

$$N + D = 20$$

$$12 + D = 20$$

$$\cancel{12} + D - \cancel{12} = 20 - 12$$

$$D = 8$$

dimes

⑥ $x + y = 15$

$2.00x + 3.00y = 35.00$

$$\begin{pmatrix} x + y = 15 & (-3) \\ 2x + 3y = 35 & (1) \end{pmatrix}$$

$-3x - 3y = -45$

$2x + 3y = 35$

$-1x = -10$

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

$x = 10$

regular pizza

$x + y = 15$

$10 + y = 15$

$10 + y - 10 = 15 - 10$

$y = 5$

stuffed crust pizza

⑦ $xy = k$

$x = 4$ when $y = 6$ find y if $x = 2$

$(4)(6) = k$

$24 = k$

$xy = 24$

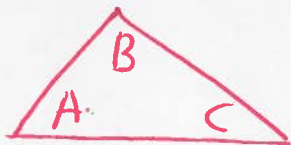
$2(y) = 24$

$2y = 24$

$\frac{2y}{2} = \frac{24}{2}$

$y = 12$

⑧



$$A + B + C = 180^\circ$$

$$\frac{A + B + C}{3} = \frac{180^\circ}{3}$$

$$\frac{A + B + C}{3} = 60^\circ \quad (\text{mean})$$

average



⑨ $P(\text{rain}) = \frac{1}{4}$ probability of rain

$P(\text{no rain}) = \frac{3}{4}$ probability of no rain

$P(\text{no rain}) \cdot P(\text{no rain}) =$

$$\left(\frac{3}{4}\right) \cdot \left(\frac{3}{4}\right) =$$

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

⑩

$$B - .20B =$$

$$1.00B - .20B =$$

$$.80B =$$

(11)



$w = \text{width}$
 $w+6 = \text{length}$

$$(w+6)(w) = 40$$

$$w^2 + 6w = 40$$

$$w^2 + 6w - 40 = 0$$

$$(w-4)(w+10) = 0$$

$$w-4=0 \quad \text{OR} \quad w+10=0$$

$$w-4+4=0+4 \quad \text{OR} \quad w+10-10=0-10$$

$$w=4, \quad \text{OR} \quad w=-10$$

width

$$w+6 = 4+6 = 10 \quad \text{Length}$$

(12)

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

$$2w=0 \quad \text{OR} \quad w-4=0$$

$$\frac{2w}{2} = \frac{0}{2} \quad \text{OR} \quad w-4+4=0+4$$

$$w=0 \quad \text{OR} \quad w=4$$

10.

13 $C = P + .065P$

$$C = 99.99 + .065(99.99)$$

$$C = 99.99 + 6.49935$$

$$= 106.48935$$



14.

$$\frac{4}{4+5+3} =$$

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

$$\frac{4(1)}{4(3)} =$$

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

15. Find the Y-intercept for $y = (x-4)^2$

let $x=0$

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

$$y = (0-4)^2$$

$$y = (0-4)^2$$

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

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

$$y = 16$$

$$(x, y) = (0, 16)$$

12

16. Find the X-intercepts of $y = -16x^2 + 32x$

let $y=0$

$$y = -16x^2 + 32x$$

$$0 = -16x^2 + 32x$$

$$0 = -16x(x-2)$$

$$-16x = 0 \quad \text{OR} \quad x-2=0$$

$$\frac{-16x}{-16} = \frac{0}{-16} \quad \text{OR} \quad x-2+2=0+2$$

$$x = 0$$

$$\text{OR} \quad x = 2$$

$$(x, y) = (0, 0)$$

$$(2, 0)$$

(17) Solve $8x^2 - 7x - 1 = 0$

$$(8x+1)(x-1) = 0$$

Let $8x+1=0$ OR $x-1=0$

$$8x+1-1=0-1 \quad \text{OR} \quad x-1+1=0+1$$

$$8x = -1$$

$$\text{OR} \quad x = 1$$

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

$$x = -\frac{1}{8} \quad \text{OR} \quad x = 1$$

(18)

Solve $x^2 - x - 12 = 0$

$$\begin{matrix} 12 \cdot 1 \\ 6 \cdot 2 \\ 3 \cdot 4 \end{matrix}$$

Let $(x+3)(x-4) = 0$

$$x+3=0 \quad \text{OR} \quad x-4=0$$

$$x+3-3=0-3 \quad \text{OR} \quad x-4+4=0+4$$

$$x = -3 \quad \text{OR} \quad x = 4$$

(19)

Find C if $(3x-2)(4x+C) = 12x^2 + 7x - 10$

$$\text{Last} \cdot \text{Last} = \text{Last} \quad -2C = -10$$

$$\frac{-2C}{-2} = \frac{-10}{-2}$$

$$C = 5$$

20. Solve $x^2 - 6 = x$

$$x^2 - 6 - x = x - x$$

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

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

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

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

$$x+x-x=0-2 \text{ OR } x-3+3=0+3$$

$$x = -2 \text{ OR } x = 3$$

21. Solve $x+3y=11$

$$4x-y=5$$

$$\begin{array}{l} (x+3y=11) \quad (1) \text{ Mult} \\ (4x-y=5) \quad (3) \end{array}$$

$$\begin{array}{r} 1x+3y=11 \\ 12x-3y=15 \\ \hline \end{array}$$

$$13x = 26$$

$$\frac{13x}{13} = \frac{26}{13}$$

$$x = 2$$

Subst

$$x+3y=11$$

$$(2)+3y=11$$

$$2+3y=11$$

$$x+3y-x=11-2$$

$$3y=9$$

$$\frac{3y}{3} = \frac{9}{3}$$

$$y=3$$

$$(x,y)=(2,3)$$

114.

(22) If on a map 1 inch equals 5 miles then 30 inches equals how many miles?

$$\frac{1}{5} = \frac{30}{x}$$

$$1(x) = 5(30)$$

$$x = 150 \text{ miles}$$



(23) Find V if $V = Pr^2H$

~~$P = 3$~~
 $P = \pi, r = 6a, H = 2a + 5$

$$V = Pr^2H$$

$$V = \pi (6a)^2 (2a + 5)$$

$$V = \pi (6a)(6a)(2a + 5)$$

$$V = \pi (36a^2)(2a + 5)$$

$$V = \pi (72a^3 + 180a^2)$$

$$V = 72\pi a^3 + 180\pi a^2$$

$$\begin{array}{r} 1 \\ 36 \\ \times 2 \\ \hline 72 \end{array}$$

$$\begin{array}{r} 3 \\ 36 \\ \times 5 \\ \hline 180 \end{array}$$

(24) Find $\frac{1}{4}$ of $(16x + 20)$

$$\frac{1}{4}(16x + 20)$$

$$\frac{16x + 20}{4} =$$

$$\frac{16x}{4} + \frac{20}{4} =$$

$$4x + 5 =$$

25. Factor GCF

$$14x^3 + 8x^2 + 12xy^2 =$$
$$2x(7x^2 + 4x + 6y^2) =$$



26. Factor ~~GCF~~

$$3x^3 + 9x^2 + 6x =$$
$$3x(x^2 + 3x + 2) =$$

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

27. Factor the GCF

$$14x^3 + 6x^2 + 8x =$$
$$2x(7x^2 + 3x + 4) =$$

28. Factor GCF

$$15x + 5 =$$

$$5(3x+1) =$$

29. Factor GCF

$$8x^2y - 2x^2y^2 =$$

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

30. $7y + 2 = 15 + 3y$

$$7y + \cancel{x} - \cancel{x} = 15 + 3y - 2$$

$$7y = 3y + 13$$

$$7y - 3y = 3y + 13 - 3y$$

$$4y = 13$$

$$\frac{4y}{4} = \frac{13}{4}$$

$$y = \frac{13}{4}$$