

81. \_\_\_\_\_ students The president of the student body estimated that 2 out of every 3 students at Creighton Middle School would attend the Spring Festival. If there are 1140 students at this school, according to the estimate, how many students will *not* attend the Spring Festival?

If  $\frac{2}{3}$  attend, then  $\frac{1}{3}$  will not.

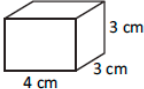
$$\frac{1}{3} \frac{(1140)}{1} = \textcircled{380}$$

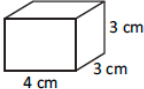
82. \_\_\_\_\_ shots Vinnie made 60% of the shots he attempted in Friday's basketball game. If he made 18 shots in the game, how many shots did he attempt?

$$60\% \text{ of } x = 18$$

(shots attempted)

$$\begin{array}{r} .6x = 18 \\ \underline{.6} \phantom{x} \\ x = \textcircled{30} \end{array}$$

83. \_\_\_\_\_ cubes  How many 0.5 cm  $\times$  0.5 cm  $\times$  0.5 cm cubes are needed to completely fill this rectangular prism measuring 4 cm  $\times$  3 cm  $\times$  3 cm?



$$4 \div .5 = 8$$

$$8 \cdot 6 \cdot 6 = \textcircled{288}$$

$$3 \div .5 = 6$$

$$3 \div .5 = 6$$

Divide by .5 to see how many

84. \$ Allison spent a total of \$16.20 for lunch at Burrito De-lite, including tax and a tip. She paid 8% sales tax on her purchase and then left the waiter a tip equivalent to 20% of her total bill including tax. What was the cost of Allison's meal, before tax and the tip?

$$x = \text{cost of meal}$$

$$16.20 = x + .08x + .2(1.08x)$$

cost of meal + tax + tip

$$= x + .08x + .216x$$

$$\frac{16.20}{1.296} = \frac{1.296x}{1.296}$$

$$\$12.50 = x$$

85. \_\_\_\_\_ g The table below shows the weight of various coins, according to U.S. Mint specifications. Jarnail has coins worth a total of 42¢ in his pocket. What is the least number of grams the coins in Jarnail's pocket could weigh? Express your answer as a decimal to the nearest thousandth.

Denomination	Penny	Nickel	Dime	Quarter
Weight	2.500 g	5.000 g	2.268 g	5.670 g

find coins with least weight


4 dimes and 2 pennies


$$4(2.268) + 2(2.5)$$

$$9.072 + 5$$

$$\textcircled{14.072}$$

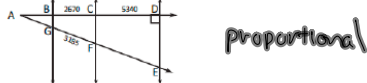
86. cm<sup>2</sup> A rectangle has a perimeter of 62 cm. If the length and width are each increased by 2 cm, by how many square centimeters does the area increase?

$31+w$   
  
 $\frac{1}{2}P = \frac{1}{2}(62) = 31$

$31-w+2 = 33-w$   
  
 $31w-w^2 = A$   
 $A = (33-w)(w+2)$   
 $33w + 66 - w^2 - 2w^2$   
 $31w + 66 - w^2$

66 more

87. units Lines BG, CF and DE are all parallel and coplanar. These three lines intersect rays AD and AE, as shown. Suppose BC = 2670 units, CD = 5340 units and FG = 3185 units. What is the length of segment EF?



proportional

$$\frac{2670}{5340} = \frac{1}{2} \quad \frac{3185}{x} = \frac{1}{2}$$

$$x = 637$$

88. messages A group of 9 friends received a combined total of 233 text messages in two hours. One person received 25 messages. How many text messages did each of the other 8 friends receive if they each received the same number of messages as each other?

$$\begin{array}{r} 233 \\ -25 \\ \hline 208 \end{array}$$

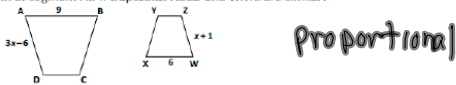
$$\begin{array}{r} 23 \\ 8 \overline{)208} \\ \underline{16} \phantom{0} \\ 48 \\ \underline{48} \\ 0 \end{array}$$

23

89. units<sup>2</sup> The coordinates of  $\triangle ABC$  are  $A(1, 2)$ ,  $B(1, 10)$  and  $C(16, 2)$ . What is the area of  $\triangle ABC$ ?

$A = \frac{1}{2}bh$   
 $= \frac{1}{2}(15)(8)$   
 $= 60$

90. units What is the length of segment AD if trapezoids ABCD and WXYZ are similar?



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proportional

$$\frac{XW}{AB} = \frac{6}{9} = \frac{ZW}{AD} = \frac{x+1}{3x-6}$$

$$\frac{6}{9} = \frac{x+1}{3x-6}$$

$$18x - 36 = 9x + 9$$

$$\begin{array}{r} 18x - 36 = 9x + 9 \\ -9x \phantom{-36} \\ \hline 9x - 36 = 9 \end{array}$$

$$\begin{array}{r} 9x - 36 = 9 \\ +36 \phantom{+36} \\ \hline 9x = 45 \end{array}$$

$$\frac{9x}{9} = \frac{45}{9}$$

$x = 5$

$$AD = 3x - 6$$

$$= 3(5) - 6$$

$$= 9$$