

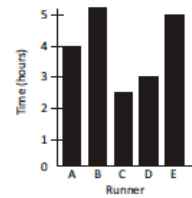


# Warm-Up 3

31. \_\_\_\_\_ cm Each side of a regular hexagon measures 6 cm. What is the perimeter of the hexagon?

$$P = 6s = 6 \cdot 6 = 36$$

32. \_\_\_\_\_ hours The graph shows the length of time it took five runners to complete a marathon. What was the median time of the five runners?



$$A=4 \quad B=5 \quad C=2.5 \quad D=3 \quad E=5$$

33. \_\_\_\_\_ What is the product of the greatest and least two-digit prime numbers?

$$\text{Greatest} = 97 \quad \text{Least} = 11 \quad 97 \times 11 = 1067$$

34. \_\_\_\_\_ minutes It takes a mechanic 4 hours to install carburetors in 3 cars. At this rate, how many minutes will it take the mechanic to install carburetors in 5 cars?

$$4 \text{ hr} = 4 \cdot 60 = 240 \text{ min} \quad \frac{240}{3} = \frac{x}{5} \quad \frac{5(240)}{3} = \frac{3x}{3} \quad 400 = x$$

35. \_\_\_\_\_ In a certain parking lot, there are 2 black cars, 3 blue cars, 4 red cars and 3 green cars. If there are no other cars in the parking lot, what is the probability that a car randomly chosen from the parking lot is *not* green? Express your answer as a common fraction.



$$P(G) = \frac{3}{12} = \frac{1}{4} \quad P(NG) = 1 - \frac{1}{4} = \frac{3}{4}$$

36. \_\_\_\_\_ in Becca is making 20 craft projects. She has 15 yd of ribbon, and each craft project requires the same length of ribbon. What is the maximum length of ribbon each craft project can require, in inches?



$$15 \text{ yd} = 15 \cdot 3 \cdot 12 = 540 \text{ in} \quad 540 \div 20 = 27 \text{ in}$$

37. \_\_\_\_\_ What is the value of  $2 \div 4 \times 8$ ?

$$2 \div 4 = .5 \times 8 = 4$$

38. \_\_\_\_\_ degrees What is the measure of the supplement of the smaller angle formed by the hands of a clock that displays a time of four o'clock?

$$\text{At 4 the angle} = 4 \cdot 30 = 120^\circ \quad \text{Supplement} = 180 - 120 = 60^\circ$$



39. \$ Marita purchased an item for 45% off the original price, plus an additional 20% off the sale price. She also had a \$5-off coupon, which the salesclerk applied after these two discounts. Marita's final purchase price for the item was \$50. Assuming she paid no sales tax, what was the original price of the item Marita purchased?

$$\text{let } x = \text{original price} \quad \text{if } 45\% \text{ off - pay } 55\%, \text{ if } 20\% \text{ off} \quad \text{pay } 80\% \quad (.55)(.80)x - 5 = 50 \quad .44x - 5 = 50 \quad .44x = 55 \quad .44x = 55 \quad x = 125$$

40. \_\_\_\_\_ Multiplying a number by  $x$  yields the same result as dividing the number by 0.125. What is the value of  $x$ ?

$$xy = \frac{y}{.125} \quad xy = \frac{y}{1/8} = y \div \frac{1}{8} = 8 \cdot y \quad xy = 8y \quad \text{so } x = 8$$

$$\div 125 = \frac{1}{8}$$



# Warm-Up 4



41. \_\_\_\_\_ If each row and each column shown here must contain exactly one heart, square, circle and triangle, which shape must be placed in the shaded space?



42. \_\_\_\_\_ degrees Two angles of a triangle measure 7 degrees and 97 degrees. What is the degree measure of the supplement of its third angle?

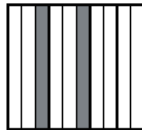
$$180^\circ - 7 - 97 = 76^\circ \quad \text{Supplement} = 180^\circ - 76^\circ = 104^\circ$$

43. \_\_\_\_\_ What is the positive difference between 3.75 and  $\frac{7}{4}$ ?

$$\frac{7}{4} = 1.75$$

$$3.75 - 1.75 = 2$$

44. \_\_\_\_\_ Assuming the sections are congruent, what portion of the figure is shaded? Express your answer as a common fraction.



$$\frac{2}{10} = \frac{1}{5}$$

45. \_\_\_\_\_ If two different students are randomly selected from a class of 12 boys and 8 girls, what is the probability that both students are girls? Express your answer as a common fraction.

$$P(G) \cdot P(G) = \frac{8}{20} \cdot \frac{7}{19} = \frac{14}{95}$$

46. \_\_\_\_\_ degrees What is the degree measure of an interior angle of a regular pentagon?



$$\# \text{ of degrees in pentagon} = (180)(5-2) = 180 \cdot 3 = 540^\circ$$

$$540^\circ \div 5 = 108^\circ$$

47. \_\_\_\_\_ quarters Joe has 37 coins consisting of nickels, dimes and quarters. There are four more nickels than dimes and two more quarters than nickels. What is the total number of quarters that Joe has?

$$\begin{aligned} x+6 &= \text{quarters} & x &= \text{dimes} & x+4+2 &= \text{quarters} & \rightarrow & 3x+10 &= & 37 \\ q+n &= 15 & x+4 &= \text{nickels} & x+(x+4)+(x+6) &= & 37 & 3x &= & 27 \\ & & & & & & & x &= & 9 \end{aligned}$$

48. \_\_\_\_\_ fl oz A pharmacist must mix 12 fl oz of cough syrup that contains 25% active ingredient with flavored syrup that contains no active ingredient. How many fluid ounces of flavored syrup must the pharmacist add to create a mixture containing 10% active ingredient?

| # of g | fl oz | %  |
|--------|-------|----|
| 1st    | 12    | 25 |
| no act | x     | 0  |
| new    | 12+x  | 10 |

$$\begin{aligned} 3 + 0 &= 1.2 + .1x \\ 30 &= 12 + 1x \\ 18 &= x \end{aligned}$$



49. \_\_\_\_\_ When writing twenty-one-and-a-half trillion in scientific notation, what is the exponent needed on the base 10?

$$21,500,000,000,000 = 2.15 \times 10^{13}$$

50. \_\_\_\_\_ \$ Safir can choose how he gets paid for a job. He can be paid \$1000 all at once, or he can earn \$1 for the first day, \$2 for the second, \$4 for the third, and so on, so that each day's pay is double that of the previous day. What is the positive difference of the total amounts Samir can be paid for completing a ten-day job, based on these two compensation plans?



$$1 + 2 + 4 + 8 + 16 + 32 + 64 + 128 + 256 + 512$$

$$2^0 + 2^1 + 2^2 + 2^3 + \dots + 2^{10}$$

$$1023 - 1000 = 23$$