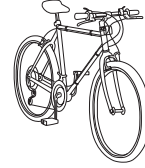





# Warm-Up 12

1. \_\_\_\_\_ miles Karen rode her bicycle for five hours. The first hour she rode at 9 miles per hour, and each hour after that she rode at a speed that was 2 miles per hour faster than she had ridden during the previous hour. How many miles did she travel during the five hours?



2. \_\_\_\_\_ A container holds 10 red marbles, 20 blue marbles and 5 yellow marbles. Joseph draws exactly three marbles, without replacement, including exactly one yellow marble. If the probability of drawing 3 marbles and the yellow marble being drawn first is  $k$  times the probability of drawing three marbles and the yellow marble being drawn third, what is the value of  $k$ ?

3. \_\_\_\_\_ sq cm The length of one rectangle is 4 cm greater than the width of a second rectangle. The width of the first rectangle is 6 cm and the length of the second rectangle is 9 cm. The area of the second rectangle is 3 sq cm less than the area of the first rectangle. What is the sum of the areas of the two rectangles?

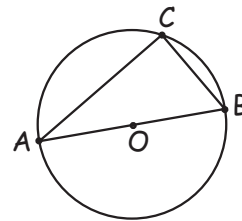
4. \_\_\_\_\_  Hezy flips a fair coin six times. What is the probability that the resulting sequence of heads and tails is palindromic? Express your answer as a common fraction.

5. \_\_\_\_\_ years Six years ago, Mr. Foster was two years more than five times as old as his son was then. Six years from now, Mr. Foster will be eleven years more than twice as old as his son will be then. How old is Mr. Foster now?



6. \$ \_\_\_\_\_ A company that has failed in its business is able to pay its creditors 24 cents for each dollar it owes them. Had the company been able to collect \$600 from a customer who owed it that amount, it could have paid its creditors at a rate of 28 cents for each dollar owed. In dollars, how much was the company's debt to its creditors at the time of its failure?

7. \_\_\_\_\_ sq in Circle  $O$ , shown to the right, has a diameter of length 8 inches. If  $m\angle CAB$  is  $30^\circ$ , what is the area of inscribed triangle  $ABC$ ? Express your answer in simplest radical form.



8. \_\_\_\_\_ Estephan accidentally switched the whole number part and the denominator of his mixed number. When he subtracted his new mixed number from the correct mixed number, his answer was  $1\frac{1}{6}$ . If both mixed numbers had a one in the numerator, what was the original mixed number?

9. \_\_\_\_\_ Let  $x$  represent a positive integer. If the ratio of 320 to  $x$  is equal the ratio of  $x$  to  $p$ , where  $p$  is a prime number, then what is the value of  $p$ ?

10. \_\_\_\_\_ cu cm A closed rectangular box with a square base has a total surface area of 48 sq cm. The dimensions of the box are positive integers. In cubic centimeters, what is the sum of all possible distinct volumes of the box?