

# Warm-Up 8

1. \_\_\_\_\_ The faces of a cubical die are each labeled with a different prime number, and each of the six smallest prime numbers (2, 3, 5, 7, 11, 13) is on exactly one face of the die. The die will be rolled twice. What is the probability that the product of the two numbers rolled will be even? Express your answer as a common fraction.

2. \_\_\_\_\_ sq units What is the area of the triangle with vertices at (0, 2), (3, 2) and (3, 0) on the coordinate plane?

3. \_\_\_\_\_ Gary can select any positive two-digit integer between 23 and 98 and write it as "AB" with tens digit A and ones digit B. When he subtracts the sum  $A + B$  from his integer, the difference will be a new two-digit integer, "JK." What is the value of  $J + K$ ?

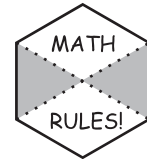
4. \_\_\_\_\_ runners During the Great Falls Marathon, 50% of the runners dropped out before reaching the first water station. By the second water station,  $\frac{1}{3}$  of the remaining runners dropped out. At the third water station, 25% of the remaining runners dropped out. By the fourth water station, 90% of the remaining runners dropped out. If the remaining six runners finished the marathon, how many runners started the race?



5. \_\_\_\_\_ If  $\sqrt[n]{96} = 2\sqrt[3]{3}$ , what is the value of  $n$ ?

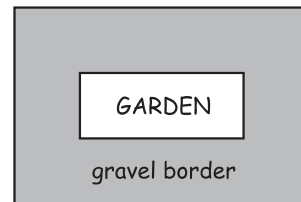
6. \_\_\_\_\_ degrees Jo's circular wheel needs to complete eight full rotations, or  $8 \times 360 = 2880^\circ$ , to roll 12 meters. How many degrees must the wheel rotate to roll 0.5 meters?

7. \_\_\_\_\_ sq inches The area of this sign in the shape of a regular hexagon is  $96\sqrt{3}$  square inches. What is the total area of the two shaded regions? Express your answer in simplest radical form.



8. \_\_\_\_\_ sq units Two sides of a particular isosceles triangle are 6 and 13 units. What is the area of this triangle? Express your answer in simplest radical form.

9. \_\_\_\_\_ feet A rectangular garden is 10 feet by 4 feet. A gravel border with uniform width along the sides and  $90^\circ$  corners surrounds the garden, as shown. The area of the gravel border is six times the area of the garden. What is the perimeter of the outside of the gravel border?



10. \_\_\_\_\_ degrees In the figure shown, segments AB and CD are parallel. What is the sum of the measures of angles BAE, AEC and ECD?

