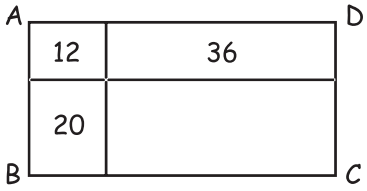
Warm-Up 12

1. _____ % A study of 100 boys and 100 girls found that 60% of girls and 20% of boys enjoy the game Quirk. What percent of the children in the study who enjoy Quirk are girls?

2. _____ degrees The measures of the four interior angles of a convex quadrilateral are $4x$, $3x + 20$, $2x + 40$ and $x + 80$ degrees. What is the measure of the smallest interior angle of the quadrilateral?

3. _____ sq units In the figure, quadrilateral ABCD is a rectangle with integer side lengths. The areas of three smaller rectangles are given, in square units. What is the area of rectangle ABCD?



4. _____ sq units A rhombus of side length 5 units has a short diagonal of length 6 units. What is the area of the rhombus?

5. _____ cu in  A rectangular piece of paper is rolled, with no overlap, into the curved surface of a cylinder. The cylinder's volume is 1872π cubic inches. The paper is then rolled tighter so that half the circumference of the new cylinder is overlapped paper, and the cylinder has the same height. What is the volume of the new cylinder? Express your answer in terms of π.

6. _____ If $x + \frac{1}{x} = 3$, what is the value of $x^4 + \frac{1}{x^4}$?

7. _____ The function $f(x) = 3x^2 - 6x - 11$ is graphed on a coordinate plane. What is the smallest y-coordinate of any points of the function?

8. _____ The mean of three numbers is 6 more than the least of the numbers, and it is 7 less than the greatest number. The median of the three numbers is 8. What is the sum of the three numbers?

9. _____ liters Two liters of an alcohol/water mixture is 25% alcohol. How many liters of pure water should be added to make a 10% alcohol solution?

10. _____ units In Figure 1, ABCD is a rectangular piece of paper. Point B is folded over onto its new location on side AD (see Figure 2), and the paper is creased from Q to C. In Figure 2, AB = 8 units, and the area of triangle QBA is 24 square units. What is the perimeter of rectangle ABCD in Figure 1?

Figure 1

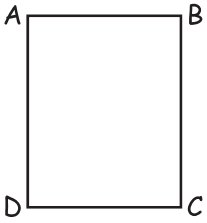


Figure 2