ANSWERS

1. c. A trapezoid by definition is a quadrilateral with exactly one pair of parallel sides.

2. b. A cube has 4 sides, a top, and a bottom, which means that it has 6 faces.

3. a. A polygon is a plane figure composed of 3 or more lines.

4. d. An acute angle is less than 90 degrees.

5. a. A straight angle is exactly 180 degrees.

6. c. A right angle is exactly 90 degrees.

7. b. because a, c, and d are incorrect. Parallel lines never intersect, perpendicular lines do intersect, and intersecting lines have only one point in common.

8. a. A triangle with two congruent sides could either be isosceles or equilateral, but one angle is 40 degrees which means it cannot be equilateral (equilateral triangles have 60 degree angles).

9. c. The sum of the angles on a triangle is 180 degrees. The two angles given add to 90 degrees, which means the last angle equals 90 degrees (right triangle).

10. a. All of the angles are acute, and all are different (acute scalene).

11. b. Both the isosceles trapezoid and the square have congruent diagonals, but only the square has diagonals that are both congruent and perpendicular.

12. c. The sum of the measure of the angles in a triangle is 180 degrees; 70 degrees + 30 degrees = 100 degrees; 180 degrees − 100 degrees = 80 degrees. Angle C is 80 degrees.

13. d. Squares, rectangles and rhombuses are quadrilaterals (have 4 sides) and each has two pairs of parallel sides. However, all angles in both squares and rectangles are 90 degrees. Therefore, only a rhombus could contain two angles that measure 65 degrees.

14. c. If the pentagons are similar, then the sides are in proportion. Because AB is similar to FG, and AB = 10 and FG = 30, the second pentagon is three times as large as the first pentagon. Therefore, IH is three times as large as CD, which gives a length of 15.

15. c. The greatest area from a quadrilateral will always be a square. Therefore, a side will be $24 \div 4 = 6$ feet. The area is 36 square feet.

16. a. The perimeter is the sum of the triangle's two legs plus the hypotenuse. Knowing two of the sides, we can find the third side, or hypotenuse (h), using the Pythagorean theorem: $a^2 + a^2 = h^2$, which gives us $(3 \times 3) + (4 \times 4) = h^2$. $9 + 16 = h^2$ or $25 = h^2$, so $h = 5$.
Add the three sides: $3 + 4 + 5 = 12$.

17. d. All the sides are equal on a regular polygon and a hexagon has 6 sides. $8 \times 6 = 48$.

18. a. The first step in solving the problem is to subtract 86 from 148. The remainder, 62, is then divided by 2 to get 31 feet.

19. d. There are two sides 34 feet long and two sides 20 feet long. $P = 2L + 2W$. Therefore, you should multiply 34 times 2 and 20 times 2, and then add the results: $68 + 40 = 108$.