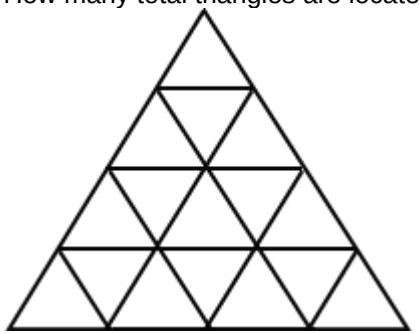
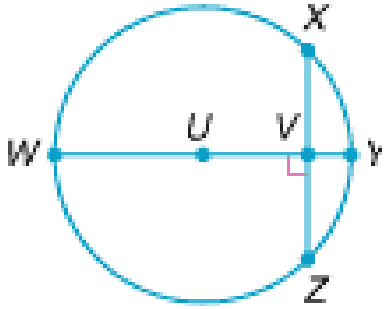
1. A circle has a radius of 6 inches. What is the perimeter of the inscribed square?	2. A. The number of false statements here is one. B. The number of false statements here is two. C. The number of false statements here is three. D. The number of false statements here is four. Which of the above statements is true?
3. The smallest angle of a triangle is two-thirds of the middle angle, and the middle angle is three-sevenths of the largest angle. Find all three angle measures.	4. How many total triangles are located in the figure below? 

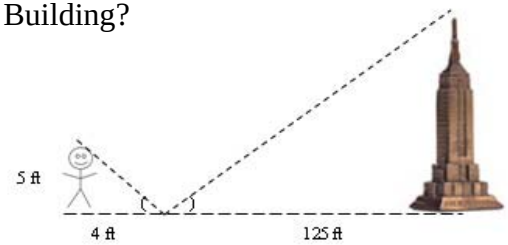
5. A = The geometric mean between 4 and 9
   B = The median of a trapezoid with bases that measure 6 and 18
   C= The area of a right triangle with a leg of 10 and a hypotenuse of 26

   Find the product of A, B and C.

6. In the picture below, the circle is centered at U with diameter $\overline{WY}$.
   If $\overline{XZ}$ = 64 and $\overline{UV}$ =24, then find the length of $\overline{VY}$.



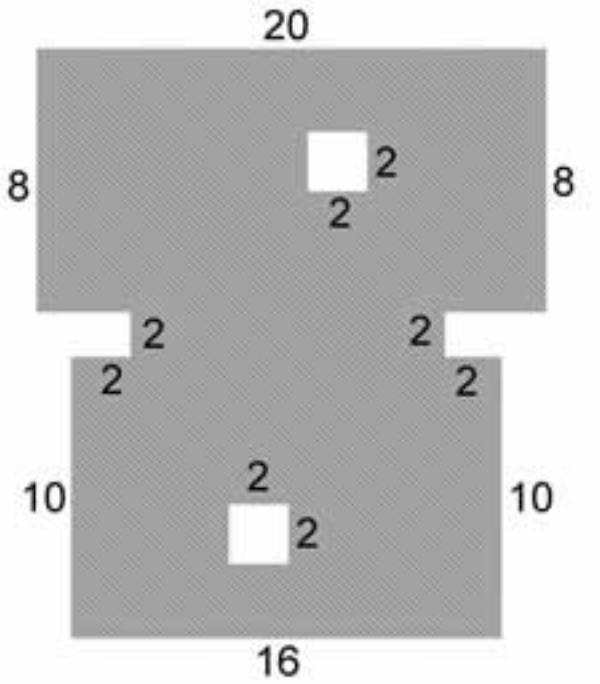
7. You are visiting an Architectural Museum. The museum has a scale model of the Empire State Building. The scale factor is 1:8. Using the picture below, how tall is the actual Empire State Building?



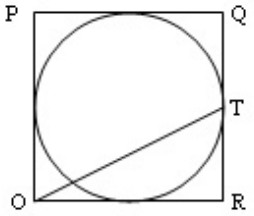
8. Tim was a loving member of the class of 2010. Of the 273 females in his class:
   - 6 will receive flowers, candy and a card from Tim
   - 113 of these will receive at least a card
   - Nine of them will receive at least flowers and candy
   - Ninety-nine of them will receive at least flowers
   - Eight of them will receive at least candy and a card
   - Sixty one of them will receive at least candy
   - Ten of them will receive at least a card and flowers

   Since Tim was a freshman in every sense of the word, some of the girls evidently have given Tim the "brush off" and will receive nothing. How many girls will receive nothing?

9. Find the area of the shaded region. All intersecting lines form right angles.



10. A circle is inscribed in a square of side length 2 as pictured. If the square is tangent to the circle at T, find the length of $\overline{OT}$.



11. The Easter Bunny is preparing for his voyage next week by hopping stairs. He can hop 1 or 2 steps at a time. If the flight of stairs on which he practices has 8 stairs, how many ways can the Easter Bunny hop up the flight of stairs?

12. Two exterior angles of a triangle measure 60 and 155 degrees. Find the measure of the angle of the triangle that is remote interior to both of these angles.

13. The diagonal of a square is the same length as the apothem of an equilateral triangle. Find the ratio of the area of the triangle to the area of the square.	14. A woman starts at a fixed point and then walks: • 4 meters north • 11.5 meters west • 12 meters south • 22.5 meters east • And finally 13 meters south How many meters is she from her starting place?
15. The legs of a right triangle are 24 and 32. Find the length of the altitude to the hypotenuse.	

ANSWERS

1. $24\sqrt{2}$ or $\frac{48}{\sqrt{2}}$

2. The 3rd one or C. (Since each statement says that there are a different # of correct statements, then only 1 statement can be correct. If one is correct, then 3 are false.)

3. 30 degrees, 45 degrees and 105 degree

4. 27. (16 one-cell, 7 four-cell, 3 nine-cell, 1 sixteen-cell)
5. 8640 (A=6, B=12, C =120)
6. 16
7. 1250 feet
8. 21
9. 336
10. $\sqrt{5}$ (place on coordinate plane with O at the origin)
11. 34 (See chart below—it acts like the Fibonacci series. Just start with a smaller problem and work up until you see the pattern)

# of stairs	1	2	3	4	5	6	7	8
# of ways	1	2	3	5	8	13	21	34

12. 35
13. $6\sqrt{3}:1$
14. $\sqrt{562}$
15. $\frac{96}{5}$ or 19.2