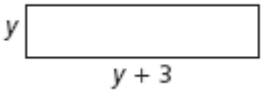
Name: _____ Test on Plane Geometry 1/18/2005

1.
The width of the rectangle below is represented by a certain positive number *y*. Its length is represented by
y - 3.



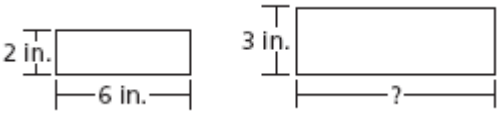
Which expression represents the area of the rectangle?

A *y* - (*y* - 3)
B *y*(*y* - 3)
C 2*y* - 2(*y* - 3)
D 2*y* - (*y* - 3)

2.
How does the perimeter of a rectangle change when each side is increased by 2 units?

A The perimeter doubles.
B The perimeter quadruples.
C The perimeter increases by 4 units.
D The perimeter increases by 8 units.

3.
Melissa is creating a geometric design using similar rectangles. One of her rectangles is 2 inches wide and 6 inches long. She wants to have another rectangle that is 3 inches wide. To follow her design, how long must the second rectangle be?

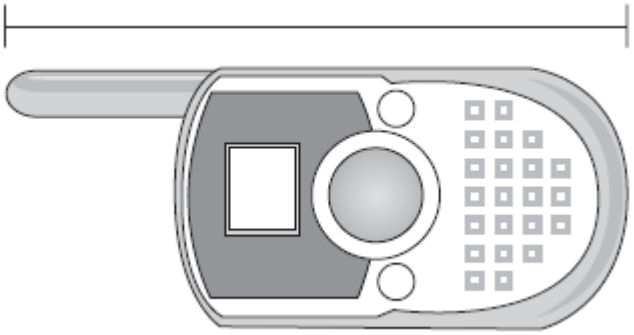


A 3 inches
B 6 inches
C 9 inches
D 12 inches

4.

Use your ruler to help you solve this problem.

Which measurement is closest to the total length of the two-way radio shown below?

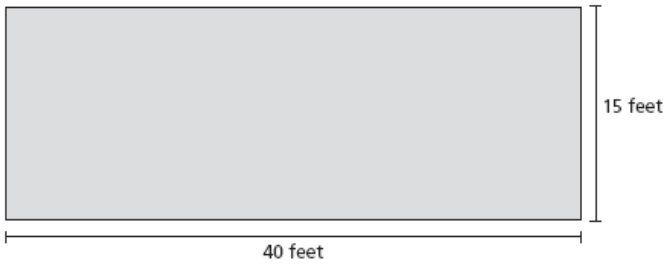


A 5 centimeters
B 5 inches
C 10 centimeters
D 10 inches

5.
Tikka made bamboo fishing poles for her sister and herself. She used $\frac{3}{5}$ of a 10-foot stick of bamboo for her pole and the rest for her sister's. How long is her sister's fishing pole?

F 8 feet
G 6 feet
H 4 feet
J 2 feet

6.
Joseph needs to calculate how much grass seed he needs to cover his lawn. A diagram of his lawn is shown below.



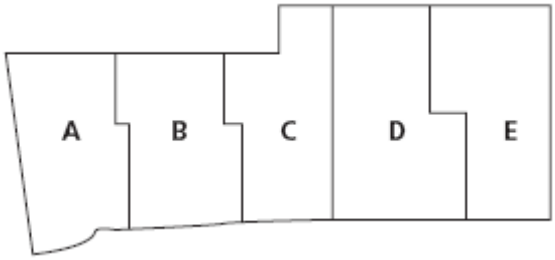
One pound of seed covers an area of 100 square feet and the seed is sold in five-pound bags. How many bags will he need?

F 1
G 2
H 3
J 5

7. A dinner plate has a diameter of 7 inches. Approximately how many inches is the circumference of the plate?

F 14 inches
G 22 inches
H 44 inches
J 154 inches

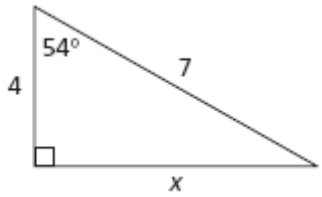
8.
Johan is counting all the pumpkins in his family's field just before the harvest. A diagram of the entire field divided into sections is shown below.



He counted 358 pumpkins in section A. Assuming the pumpkins are evenly distributed across the entire field, what is the best estimate for the total number of pumpkins in the entire field?

F 500–1,000
G 1,000–1,500
H 1,500–2,000
J 2,000–2,500

9.
Which equation can be used to find the length of side *x* in the right triangle below?



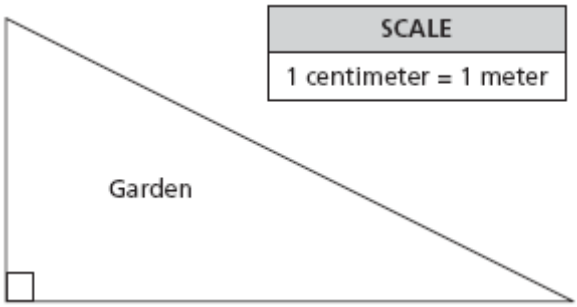
F cosine 54° = $\frac{7}{x}$
G sine 54° = $\frac{x}{7}$
H cosine 54° = $\frac{4}{x}$
J sine 54° = $\frac{x}{4}$

10.
The length of a rectangle is five inches longer than the width. If the area of the rectangle is 14 square inches, which equation can be used to find the width of the rectangle?

F $2x - 2(x - 5) - 14$
G $x - x - 5 - 14$
H $x(x - 5) - 14$
J $x - 5 - 14$

11.

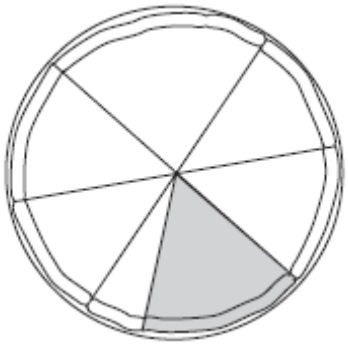
Use your ruler to help you solve this problem. A garden is in the shape of a triangle as shown in the figure below. The garden is to be enclosed by a fence.



Based on the scale, how much fencing is needed to enclose the garden?

F 19.1 meters
G 20.7 meters
H 23.5 meters
J 26.6 meters

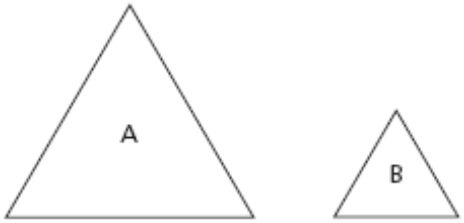
12.
Juliet's dad made the mushroom pizza pictured below.



The slice that is shaded has 9 pieces of mushroom on it. What is the most reasonable estimate for the number of pieces of mushroom on the whole pizza?

A 100–125
B 75–100
C 50–75
D 25–50

13.
The lengths of the sides of equilateral triangle A are twice the lengths of the sides of equilateral triangle B. How many of triangle B can fit in triangle A?



F 2
G 3
H 4
J 6

14.
Two angles are complementary. One angle measures 60 degrees. What is the measure of the other angle?

A 30 degrees
B 60 degrees
C 90 degrees
D 120 degrees

15.
In the diagram below, the distance from the ground to the bottom of the car is equal to half the height of the tire. Each tire has a circumference of 9.42 feet.

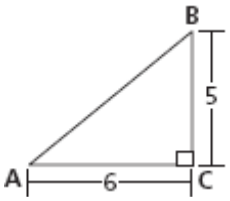
How far is the bottom of the car from the ground?

F 0.75 foot
G 1.00 foot
H 1.50 feet
J 3.00 feet

16.
Jeremy has a box with a rectangular lid. The top of the lid has an area of 392 square centimeters. The ratio of the width to the length of the lid is 1:8. What are the dimensions of the lid?

A 4 cm by 98 cm
B 7 cm by 56 cm
C 8 cm by 49 cm
D 8 cm by 64 cm

17.
What is the length of the hypotenuse of the triangle shown below?



F $\sqrt{61}$
G 61
H $\sqrt{11}$
J 11

18.
A drawing of an isosceles trapezoid is shown below.

The drawing has a perimeter of 180 inches with $\overline{AB}$ measuring 47 inches and $\overline{AC}$ measuring 30 inches. How long is $\overline{CD}$?

F 47 inches
G 60 inches
H 73 inches
J 103 inches

19.
In the equation below, which value for x will make this statement true?

$$3(x - 2) + 1 = 7$$

F 0
G 1
H 4
J 5

20.
Taylor's Music Store is open daily from 9:00 A.M. until 4:30 P.M., 255 days a year. How many hours in all is the store open to the public each year?

F 114.75 hours
G 191.25 hours
H 1147.5 hours
J 1912.5 hours