

## Gen Math - Measurement 2 Worksheet



1. A sphere and a closed cylinder have the same radius. The height of the cylinder is four times the radius. What is the ratio of the volume of the cylinder to the volume of the sphere?  
  
(A) 2:1  
  
(B) 3:1  
  
(C) 4:1  
  
(D) 8:1
2. A rectangular field has a flower garden which is 18 feet by 6 feet. If the garden covers 30 percent of the field, what is the area, in square feet, of the field?  
  
(A) 130  
(B) 216  
(C) 360  
(D) 540  
(E) 600
3. The temperature in degree Celsius ( C ) can be converted to temperature Fahrenheit (F) by the formula  $F=9/5C+32$ . What is the temperature in Fahrenheit of a body whose temperature is  $-40^{\circ}\text{C}$ ?  
(A)  $20^{\circ}$   
(B)  $(32/5)^{\circ}$   
(C)  $0^{\circ}$   
(D)  $-20^{\circ}$   
(E)  $-40^{\circ}$
4. Two identical spheres fit exactly inside a cylindrical container. The diameter of each sphere is 12 cm.  
What is the volume of the cylindrical container, to the nearest cubic centimeter?  
ANS:  $2714\text{ cm}^3$

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5. The number of penguins,  $P$ , after  $t$  years in a new colony can be found using the following formula:

$$P = a \times 2^t$$

If there are 24 penguins after two years, find the value of  $a$ .

How many years will it take for the number of penguins to first exceed 1500?

6. The height of a particular termite mound is directly proportional to the square root of the number of termites. The height of this mound is 35cm when the number of termites is 2000. What is the height of this mound, in centimeters, when there are 10000 termites.

- (A) 16
- (B) 78
- (C) 175
- (D) 875

7. Danni is flying a kite that is attached to a string of length 80metres. The string makes an angle of  $55^\circ$  with the horizontal. How high, to the nearest metre, is the kite above Danni's hand?

8. A point  $P$  lies between a tree, 2 metres high, and a tower, 8 metres high.  $P$  is 3 metres away from the base of the tree. From  $P$ , the angles of elevation to the top of the tree and to the top of the tower are equal. What is the distance,  $x$ , from  $P$  to the top of the tower?

- 9 m
- 9.61 m
- 12.04 m
- 14.42 m

9. The point  $A$  is 25 m from the base of a building. The angle of elevation from  $A$  to the top of the building is  $38^\circ$ . Show that the height of the building is approximately 19.5 m. A car is parked 62 m from the base of the building. What is the angle of depression from the top of the building to the car? Give your answer to the nearest degree.

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10. A pole 5 m high is fixed on the top of a tower. The angle of elevation of the top of the pole observed from a point A on the ground is  $60^\circ$  and the angle of depression of point A from the top of the tower is  $45^\circ$ . Find the height of the tower. (Take  $\sqrt{3} = 1.732$ )

