

# Mathematics 1201

## Unit #1 – Review

## Measurements

	Formulas
Surface Area of a Cylinder	$SA = 2\pi r^2 + 2\pi rh$
Surface Area of a Cone	$SA = \pi r^2 + \pi rs$
Surface Area of a Sphere	$SA = 4\pi r^2$
Volume of a Sphere	$V = \frac{4}{3}\pi r^3$ or $V = \frac{4\pi r^3}{3}$
Volume of a Cone	$V = \frac{1}{3}\pi r^2 h$ or $V = \frac{\pi r^2 h}{3}$
Volume of a Pyramid	$V = \frac{1}{3}Ah$ or $V = \frac{Lwh}{3}$

Imperial
1 ft. = 12 in.
1 yd. = 3 ft.
1 mi. = 1760 yd.
Imperial to SI Units
1 in. = 2.54 cm ~ 2.5 cm
1 mi. ~ 1.6 km

1. Which of the following calculations converts 8 yards into centimeters? 1.\_\_\_\_

- (A)  $8 \text{ yd.} \times \frac{3 \text{ ft.}}{1 \text{ yd.}} \times \frac{2.54 \text{ cm}}{1 \text{ ft.}}$
- (B)  $8 \text{ yd.} \times \frac{3 \text{ ft.}}{1 \text{ yd.}} \times \frac{2.54 \text{ cm}}{1 \text{ in.}}$
- (C)  $8 \text{ yd.} \times \frac{3 \text{ ft.}}{1 \text{ yd.}} \times \frac{12 \text{ in.}}{1 \text{ ft.}} \times \frac{2.54 \text{ cm}}{1 \text{ in.}}$
- (D)  $8 \text{ yd.} \times \frac{1 \text{ ft.}}{3 \text{ yd.}} \times \frac{1 \text{ in.}}{12 \text{ ft.}} \times \frac{1 \text{ cm}}{2.54 \text{ in.}}$

2. If you have a drivers license that has a stated height of 170 cm, what height does this represent in inches (rounded to the nearest inch)? 2.\_\_\_\_

- (A) 432 in.      (B) 85 in.      (C) 68 in.      (D) 65 in.

3. You are vacationing in the United States to watch the World Series of baseball. For game seven of the series you have to fly from Toronto to St. Louis. Just as you are departing the pilot announces that it is 539 miles. Which represents the distance to the nearest kilometer? 3.\_\_\_\_

- (A) 863 km      (B) 862 km      (C) 337 km      (D) 323 km

4. A hemispherical imaging camera must be mounted on the ceiling by a carpenter. If the surface area of the hemispherical camera is  $226.2 \text{ cm}^2$ , (bottom not included) then which represents the radius? 4.\_\_\_\_

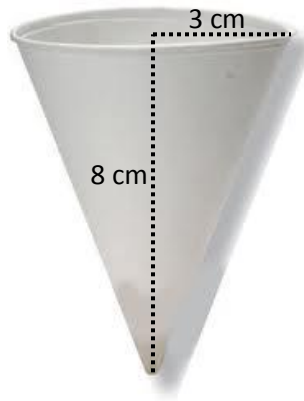
- (A) 36 cm      (B) 18 cm  
(C) 12 cm      (D) 6 cm



5. Which represents the capacity of the conical cup in  $\text{cm}^3$  if the radius is 3 cm and the height is 8 cm?

5.\_\_\_\_

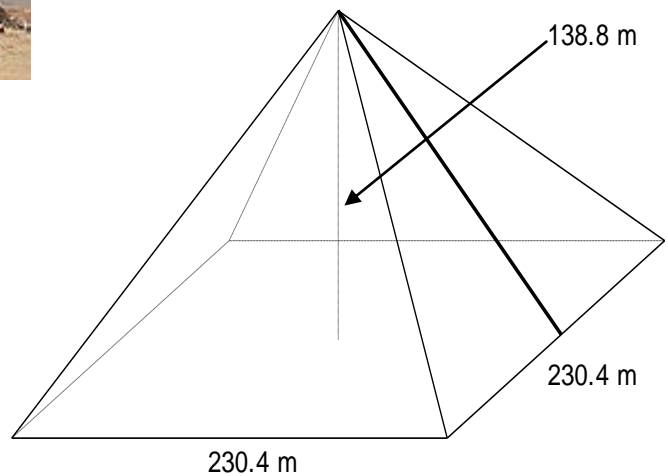
- (A)  $50.3 \text{ cm}^3$
- (B)  $75.4 \text{ cm}^3$
- (C)  $80.1 \text{ cm}^3$
- (D)  $201.1 \text{ cm}^3$



6. The Great Pyramid of Giza



The Great Pyramid of Giza, in 2005. Built c. 2560 BC, it is the oldest and largest of the three [pyramids](#) in the [Giza Necropolis](#)



The Great Pyramid of Giza in present day has a height of 138.8 m each side base has length 230.4 m. Which represents the slant height to the nearest meter?

6.\_\_\_\_

- (A) 269 m
- (B) 254 m
- (C) 180 m
- (D) 77 m

7. A spherical water buoy is inflated using a hand pump. When the buoy is inflated the radius is 20 cm. The pump produces  $670.2 \text{ cm}^3$  per pump. How many pumps are required to inflate the ball?

7.\_\_\_\_

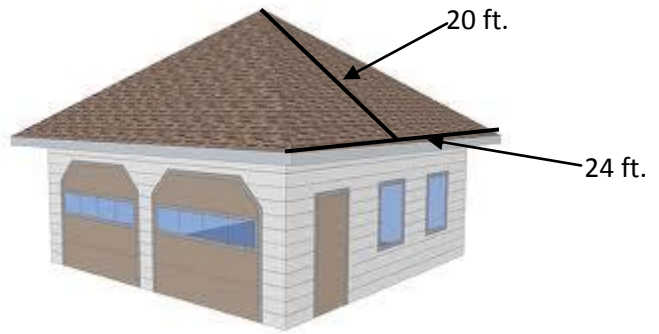
- (A) 47
- (B) 48
- (C) 49
- (D) 50



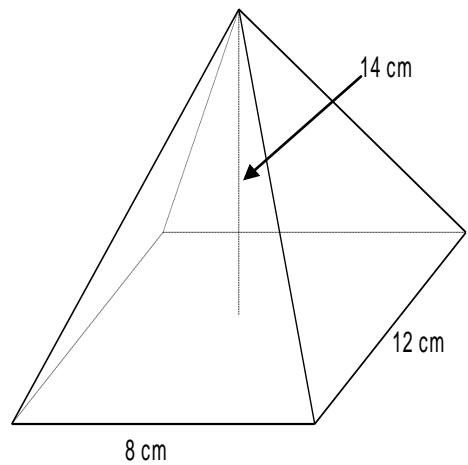
8. The roof of the double garage shed is a square pyramid. If the roof needs to be re-shingled then which represents the lateral surface area if each side of the base of the roof is 24 feet and the slant height is 20 feet ?

8.\_\_\_\_

- (A) 1536 ft.<sup>2</sup>  
 (B) 960 ft.<sup>2</sup>  
 (C) 480 ft.<sup>2</sup>  
 (D) 240 ft.<sup>2</sup>



9. Determine the surface area of the right rectangular pyramid below.

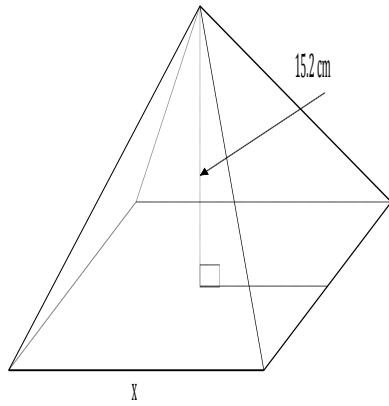


10. A right conical salt pile has a circumference of 118 feet at its base and a height of 50 feet. During the winter one truck can hold 576 ft.<sup>3</sup> of salt. Determine the number of truck loads of salt within the conical salt pile.

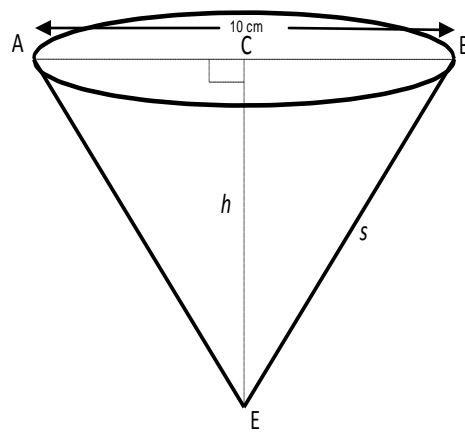


11. The surface area of a hemisphere (bottom is visible) and a sphere are both 1000 cm<sup>2</sup>. Which figure has the biggest radius and **how much bigger** is it? You must include units in your final answer.

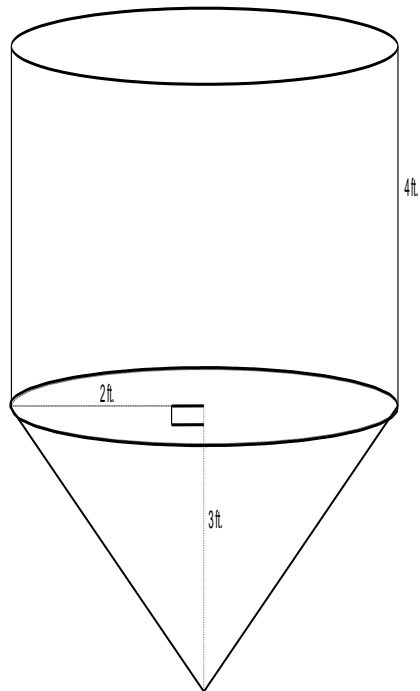
12. A right square pyramid has a volume of  $182.4 \text{ cm}^3$  and a height of  $15.2 \text{ cm}$ . Find the base length shown as  $x$ .



13. Determine the slant height of the cone with volume  $235.6 \text{ cm}^3$  and diameter  $10 \text{ cm}$ .



14. A wine vat (used to store wine) must be constructed out of oak. Determine the surface area.



**ANSWERS:**

1. C   2. C   3. B   4. D   5. B   6. C   7. D   8. B

9.  $392.8 \text{ cm}^2$    10. 32 truck loads

11. The hemisphere has a radius which is  $1.4 \text{ cm}$  longer

12.  $x = 6 \text{ cm}$    13.  $s = 10.3 \text{ cm}$    14.  $85.4 \text{ ft}^2$