Math 1201   **Chapter 1 Review**   Name:_____

Part I: **Multiple Choice. Place the correct answer in the corresponding blank at the end of this section.**

1. Which is a good referent for 1 inch?

   (A) distance from a lightswitch to the floor

   (B) distance from the tip of your thumb to the knuckle

   (C) thickness of a dime

   (D) width of your foot

2. Convert 10 km to the nearest mile?

   (A) 2

   (B) 6

   (C) 11

   (D) 16

   $$\frac{x \, mi = 10 \, km}{1 \, mi \quad 1.6 \, km}$$

   $$1.6x = 10$$

   $$\frac{1.6x}{1.6} = \frac{10}{1.6}$$

   $$x = 6.25 \sim 6$$

3. Elijah has 25 yd. of material that he will cut into strips that must be exactly 18 in. wide. How many strips can Elijah make?

   (A) 4

   (B) 16

   (C) 50

   (D) 138

   $$25 \, yd \times \frac{36 \, in}{1 \, yd} = 900 \, in$$

   $$\frac{900 \, in}{18} = 50$$

4. The radius of a golf ball is approximately 20 mm. Determine the surface area of a golf ball to the nearest square mm.

   (A) 3768 mm²

   (B) 5024 mm²

   (C) 33493 mm²

   (D) 100480 mm²

   $$SA = 4\pi r^2$$

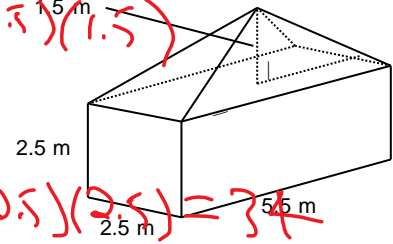 $$SA = 4\pi (20mm)^2$$

   $$= 5024 \, mm^2$$

5. Determine the volume of this composite object, which is a right square prism and a right rectangular pyramid, to the nearest tenth of a cubic metre.

(A) 18.4 m³

(B) 37.4 m³

(C) 41.3 m³

(D) 54.9 m³

$V = \frac{1}{3} l w h = \frac{1}{3}(2.5)(5.5)(1.5)$

$= 7$

$V = l w h = (2.5)(2.5)(5.5) = 34$

$\approx 41 m^3$

(handwritten dimensions on figure: 1.5 m, 2.5 m, 5.5 m, 2.5 m)

6. A square based prism has a volume of 45 ft³. What is the volume of a square based pyramid with the same base and height?

(A) 11 ft³

(B) 15 ft³

(C) 135 ft³

(D) 180 ft³

$\frac{45 ft^3}{3} = 15 ft^3$

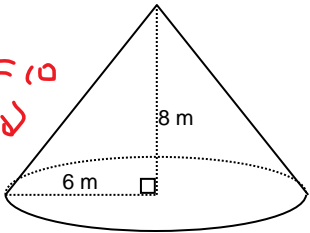7. Determine the surface area of this right cone to the nearest square metre.

(A) 123 m²

(B) 223 m²

(C) 264 m²

(D) 301 m²

$SA = \pi r^2 + \pi r S \quad S = 10$

$= \pi (6)^2 + \pi (6)(10)$

$= 301$

(figure labels: 8 m, 6 m)

8. A sphere has a surface area of 10.1 m². What is the diameter of the sphere to the nearest tenth of a metre?

(A) 1.8 m

(B) 3.6 m

(C) 7.4 m

(D) 9.6 m

$SA = 4\pi r^2$

$\frac{10.1}{4\pi} = \frac{4\pi r^2}{4\pi}$

$\sqrt{r^2} = \sqrt{0.8}$

$r = 0.89$

$d = 2(.89) = 1.8$

9. A ball has a radius of 15 cm. What is the volume of the smallest cubical box that will hold the ball?

$d = 2(15) = 30$

(A) 422 cm³

(B) 900 cm³

$V = l \cdot w \cdot h = 5 \cdot 5 \cdot 5 = 5^3 = (30)^3 = 27000 \, cm^3$

(C) 3375 cm³

(D) 27000 cm³

10. A water tank is in the shape of a right circular cylinder with a height of 15 m and a diameter of 8 m. How many square meters of sheet medal was used in its construction?

(A) 477 m²

$SA = 2\pi r^2 + 2\pi r h$

$= 2\pi(4)^2 + 2\pi(4)(15)$

$= 477$

(B) 754 m²

(C) 1156 m²

(D) 3014 m²

Answers to multiple choice.

1.___   2.___   3.___   4.___   5.___

6.___   7.___   8.___   9.___   10.___

20   **Part II: Constructed Response. Answer each question in the space provided. Show all workings.**

3   11.   Convert 777 inches to yards, feet, and inches.

$777 in \times \frac{1 ft}{12 in} = 64.75 ft \times \frac{1 yd}{3 ft} = 21.583 yds$

$0.583 \times 3 = 1.749 ft$

$0.749 \times 12 = 9 in$

21 yds 1 ft 9 in

3   12. A right square pyramid has side length 10 cm and height 7.5 cm.
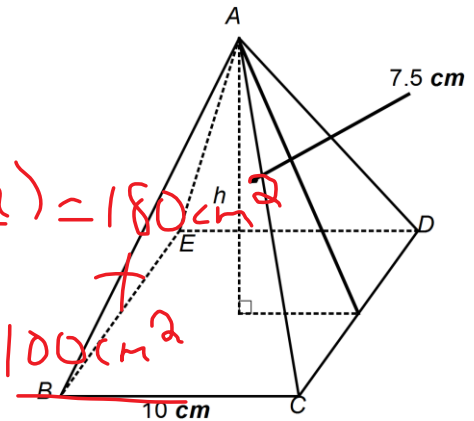
(A) What is the surface area of the pyramid to the nearest cm².

$$SA_{\triangle} = 4\frac{b \cdot h}{2} = 4\frac{(10)(9)}{2} = 180 cm^2$$

$$SA_{\square} = S^2 = (10)(10) = 100 cm^2$$

$$280 cm^2$$

(diagram: right square pyramid ABCD with apex A, height 7.5 cm, base edge 10 cm, points A, B, C, D, E, h; side triangle with legs 7.5 and 5 and hypotenuse a)
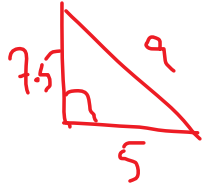
3   (B) Calculate the volume of the pyramid to the nearest cm³.

$$V = \frac{1}{3} l \cdot w \cdot h = \frac{1}{3}(10 cm)(10 cm)(7.5 cm) = 250 cm^3$$

1   (C) What would be the volume of a rectangular prism with the same base area and height?
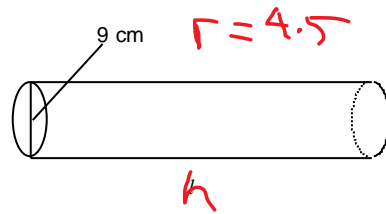
$$250 cm^3 \times 3 = 750 cm^3$$

3   13.   The volume of a length of cylindrical cable is 1250 cm³. Calculate the length of
       the cable, *l*, to the nearest centimetre.

9 cm $r = 4.5$

$$V = \pi r^2 h$$

$$1250 = \pi (4.5)^2 h$$

$$\frac{1250}{\pi (4.5)^2} = h$$

$$h = 19.6 \sim 20 \text{ cm}$$

h

3   14.   A spherical scoop of ice cream, as shown, melts into a cone. The sphere had a radius
       of 4 cm. The cone has a radius of 4 cm and a height of 15 cm. Will the melted ice
       cream fit into the cone or will it overflow the cone?

$$V_{sphere} = \frac{4}{3}\pi r^3 = \frac{4}{3}\pi (4cm)^3 = 268 cm^3$$

$$V_{cone} = \frac{1}{3}\pi r^2 h = \frac{1}{3}\pi (4cm)^2 (15cm) = 251 cm^3$$

15. Cone will overflow.
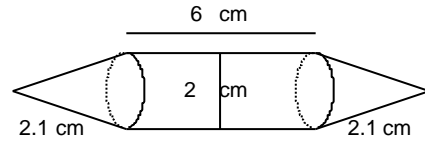
4   15.   Determine the surface area of this composite object, which is a right cylinder and
             two right cones, to the nearest square centimetre.

6 cm

2 cm

2.1 cm   2.1 cm

$$SA = 2\pi r S + 2\pi r h$$

$$= 2\pi (1 cm)(2.1 cm) + 2\pi (1 cm)(6 cm) \quad \begin{array}{l} d = 2cm \\ r = 1 cm \end{array}$$

$$= 51 cm^2$$