

Math 1201 Final Exam Review

Measurement

Part A: Multiple Choice

1. Which expression would you use to calculate the lateral area of a right cone?

- (A) $\pi r^2 + \pi rs$ (B) πdh (C) $\frac{1}{3} \pi r^2 h$ (D) πrs

2. If a soccer ball has a diameter of 22 cm, how many cubic centimetres of air would be required to fully inflate the soccer ball?

- (A) 138
(B) 276
(C) 5572
(D) 44602

$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} (3.14) (11)^3$$

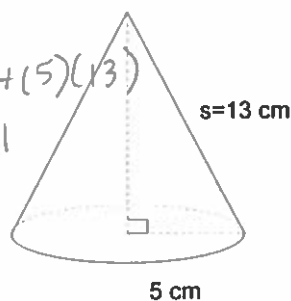
3. Find, to the nearest square centimetre, the surface area of the figure (including the base).

- (A) 263 cm²
(B) 273 cm²
(C) 283 cm²
(D) 293 cm²

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

$$= 3.14(5)^2 + 3.14(5)(13)$$

$$= 78.5 + 204.1$$

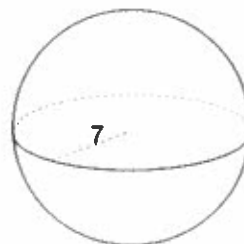


4. To the nearest tenth of a cubic centimetre, what is the volume of the sphere if $r = 7$ in.?

- (A) 205.3 in³
(B) 615.8 in³
(C) 1436.8 in³
(D) 2212.4 in³

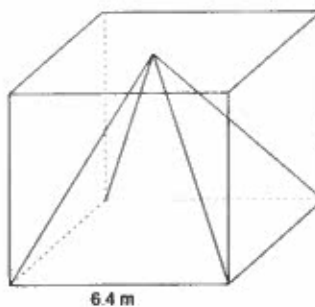
$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} (3.14) (7)^3$$



5. What is the volume of the pyramid that just fits inside the cube with side length 6.4m?

- (A) 13.65m³
(B) 87.38m³
(C) 262.14m³
(D) 785.43m³



$$V_c = (6.4)^3$$

$$= 262.144$$

$$V_p = \frac{262.144}{3}$$

6. A cone and a cylinder have the same height and the same base radius. If volume of the cylinder is 81 cm^3 , what is the volume of the cone in cm^3 ?

(A) 9 (B) 27 (C) 78 (D) 243

$$V_{\text{cone}} = \frac{1}{3} V_{\text{cyl}} \\ = 81 \div 3 = 27$$

7. A cone has a volume of 30 cm^3 and a base of 15 cm^2 . What is the height of the cone?

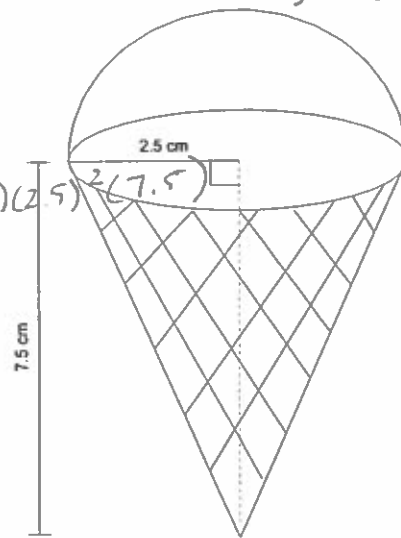
(A) 2 cm (B) 4 cm (C) 6 cm

$$V = \frac{1}{3} B h = \frac{1}{3} (15) h \\ 30 = \frac{5h}{1} \quad h = 6$$

8. A picture of an ice cream cone is shown to the right. If the ice cream fills the entire cone, how much ice cream is there?

(A) 81.8 cm^3
(B) 88.36 cm^3
(C) 114.5 cm^3
(D) 127.6 cm^3

$$V = \frac{2}{3} \pi r^3 + \frac{1}{3} \pi r^2 h \\ = \frac{2}{3} (3.14) (2.5)^3 + \frac{1}{3} (3.14) (2.5)^2 (7.5) \\ = 32.71 + 49.06$$

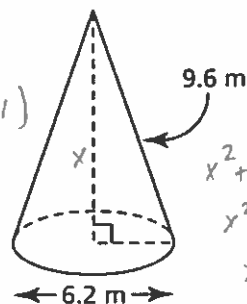


Part B: Answer the questions in the space provided

1. Give your answers to the nearest unit.

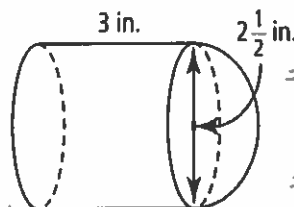
a) Find the Volume

$$V = \frac{1}{3} \pi r^2 h \\ = \frac{1}{3} (3.14) (3.1)^2 (9.1) \\ = 92 \text{ m}^3$$



$$x^2 + 3.1^2 = 9.6^2 \\ x^2 = 92.16 - 9.61 \\ x = \sqrt{82.55} \\ x = 9.1$$

b) Find the Surface Area $= \pi r^2 + \pi d h + 2 \pi r^2$



$$= (3.14) (1.25)^2 + (3.14) (2.5) (3) + 2(3.14) (1.25)^2 \\ = 4.91 + 23.55 + 9.81 \\ = 38 \text{ in}^2$$

2. A right prism and a right pyramid have the same base and the same height. Explain how their volumes are related.

3. The surface area of a sphere is 137.5 cm^2 . What is the radius of the sphere to the nearest tenth of a centimetre?

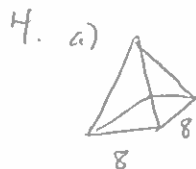
4. The volume of a right square pyramid is 126 cubic feet. The side length of the base is 8 ft.

a) Sketch the pyramid.
b) Determine the height of the pyramid to the nearest foot.
c) What is the slant height of the pyramid to the nearest foot?

$$V_{\text{Right Pyramid}} = \frac{1}{3} V_{\text{RIGHT PRISM}}$$

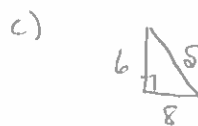
$$SA = 4 \pi r^2 \\ 137.5 = 4(3.14) r^2 \\ 137.5 = 12.56 r^2 \\ \frac{137.5}{12.56} = \frac{12.56 r^2}{12.56}$$

$$\sqrt{10.9} = r \\ r = 3.3 \text{ cm}$$



b) $V = \frac{1}{3} B h$
 $126 = \frac{1}{3} (64) h$
 $378 = \frac{64 h}{1}$

$$h = 6 \text{ ft.}$$



$$s^2 = 6^2 + 8^2 \\ = 36 + 64 \\ s^2 = 100 \\ s = \sqrt{100} = 10$$

$$10 \text{ ft.}$$