

CH 10 Rev - Sections

10A: #4

10C: #5 #6

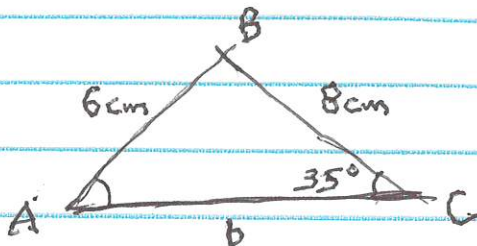
10D: #3

10E: #5 #6

10G: #3 #5 #8

10H: #1a 2a 3a

110B (#4)



$$\frac{\sin A}{8} = \frac{\sin 35^\circ}{6}$$

$$\sin A = \frac{8 \sin 35^\circ}{6}$$

$$\sin A = 0.765$$

$$A \approx 49.9^\circ \text{ or } 130.1^\circ$$

1st Δ

$$A \approx 49.9^\circ \quad a = 8 \text{ cm}$$

$$B \approx 95.1^\circ \quad b = 10.4 \text{ cm}$$

$$C = 35^\circ \quad c = 6 \text{ cm}$$

2nd Δ

$$A \approx 130.1^\circ \quad a = 8 \text{ cm}$$

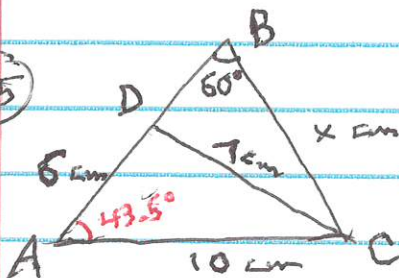
$$B \approx 14.9^\circ \quad b \approx 2.69 \text{ cm}$$

$$C = 35^\circ \quad c = 6 \text{ cm}$$

$$B = 180 - A - C \quad \frac{\sin B}{b} = \frac{\sin 35^\circ}{6}$$

✓ use / cos ✓

110C (#5)



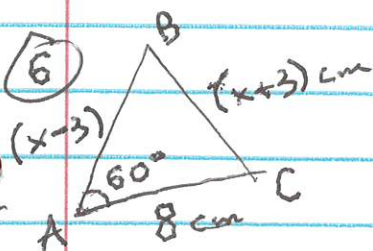
$$\cos A = \frac{6^2 + 10^2 - 7^2}{2 \cdot 6 \cdot 10}$$

$$A \approx 43.5^\circ$$

$$\frac{x}{\sin 43.5^\circ} = \frac{10}{\sin 60^\circ}$$

$$x \approx 7.95 \text{ cm}$$

(6)



$$\cos 60^\circ = \frac{8^2 + (x-3)^2 - (x+3)^2}{2(8)(x-3)}$$

$$\frac{1}{2} = \frac{64 + x^2 - 6x + 9 - x^2 - 6x - 9}{16x - 48}$$

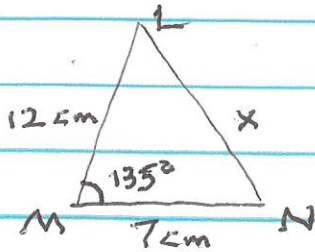
$$8x - 24 = -12x + 64$$

$$20x = 88$$

$$x = 4.4$$

10 Rev

10D (3)



$$A = \frac{1}{2} ab \sin C$$

$$A = \frac{1}{2} \cdot 7 \cdot 12 \cdot \sin 135^\circ$$

$$\text{Area} \approx 29.7 \text{ cm}^2$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$x^2 = 7^2 + 12^2 - 2 \cdot 7 \cdot 12 \cdot \cos 135^\circ$$

$$\overline{LN} \approx 17.7 \text{ cm}$$

10F (5)



$$l_{\text{major}} = 15 \text{ cm}$$

Find θ , $\angle MCN$

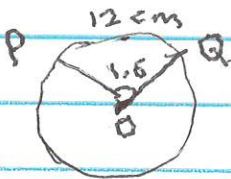
$$l = \theta \cdot r \quad C = 2\pi r = 8\pi$$

$$C = \theta r + 15$$

$$25.1 = 4\theta + 15$$

$$2.53 \approx \theta$$

(6)

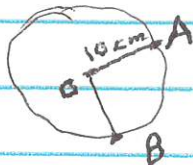


$$l = \theta \cdot r$$

$$12 = 1.6r$$

$$r = 7.5 \text{ cm}$$

10G (3)



$$A_{\text{sector, minor}} = 40 \text{ cm}^2 \quad 40 = \frac{1}{2} \cdot 10^2 \cdot \theta$$

$$A = \frac{1}{2} r^2 \theta$$

$$\theta = 0.8$$

(5)



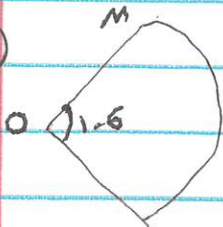
$$\text{Area} = 54 \text{ cm}^2$$

$$54 = \frac{1}{2} \cdot 1.2 \cdot r^2$$

$$A = \frac{1}{2} r^2 \theta$$

$$r \approx 9.49 \text{ cm}$$

(8)



$$P = 28 \text{ cm}$$

$$28 = 2r + 1.6r \quad A = \frac{1}{2} \cdot r^2 \cdot \theta$$

$$\text{Area? } P = 2r + l$$

$$28 = 3.6r$$

$$A = \frac{1}{2} \cdot 7.78^2 \cdot 1.6$$

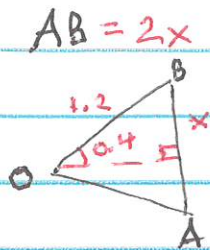
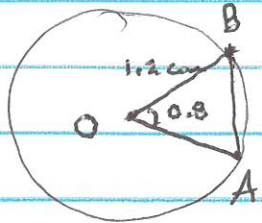
$$P = 2r + \theta r$$

$$r = 7.78 \text{ cm}$$

$$A \approx 48.4 \text{ cm}^2$$

10 Rev

10H 1a)



$$\sin(0.4) = \frac{x}{1.2}$$

$$x = 1.2 \cdot \sin(0.4)$$

$$x \approx 0.467$$

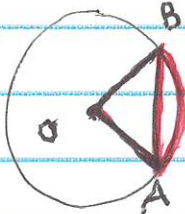
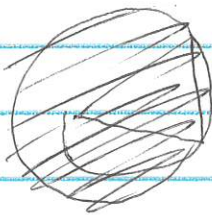
$$AB = 2x$$

$$AB \approx 0.935 \text{ cm}$$

✓

$$\checkmark \text{ w/ Formula: } AB = 2r \cdot \sin\left(\frac{\theta}{2}\right) = 2 \cdot 1.2 \cdot \sin\left(\frac{0.8}{2}\right) = 0.935 \checkmark$$

2a)



$$P = \text{arc length} + AB$$

$$P = 0.8 + 0.935$$

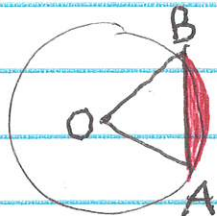
$$P = 0.8 \cdot 1.2 + 0.935$$

$$P = 1.89 \text{ cm}$$

✓

$$\checkmark \text{ w/ Formula: } P = 2r \sin\left(\frac{\theta}{2}\right) + \theta r = 0.935 + 0.8 \cdot 1.2 = 1.89 \checkmark$$

3a)



$$A_{\text{SEGMENT}} = A_{\text{SECTOR}} - A_{\text{TRIANGLE}}$$

$$A = \frac{1}{2} r^2 \theta - A = \frac{1}{2} a \cdot b \cdot \sin C$$

$$A = \frac{1}{2} \cdot 1.2^2 \cdot 0.8 - A = \frac{1}{2} \cdot 1.2 \cdot 1.2 \cdot \sin 0.8$$

$$A \approx 0.576 - A \approx 0.516$$

$$A_{\text{SEGMENT}} \approx 0.0595 \text{ cm}^2$$

✓

$$\checkmark \text{ w/ Formula: } A = \frac{1}{2} r^2 (\theta - \sin \theta) = \frac{1}{2} \cdot 1.2^2 (0.8 - \sin 0.8) \approx 0.0595 \checkmark$$

3a $V = \frac{1}{3} \cdot 4 \cdot 4 \cdot 12$
 $V = 64 \text{ cm}^3$

3b $V = \frac{1}{6} \cdot 10 \cdot 11 \cdot 13.077$
 $V \approx 240 \text{ cm}^3$

3c $V = \frac{1}{3} \cdot 9 \cdot 7 \cdot 5$
 $V = 105 \text{ cm}^3$

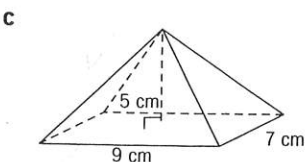
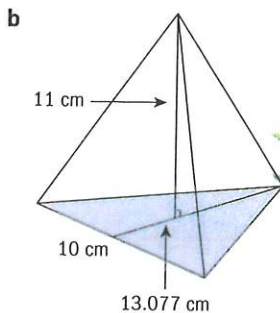
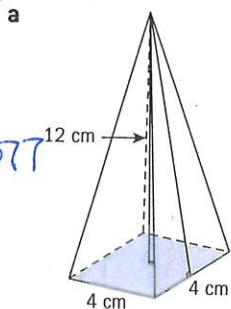
4c $V = \frac{1}{3} \cdot \pi \cdot 5^2 \cdot 12$
 $V = 100\pi \text{ cm}^3$
 $V \approx 314 \text{ cm}^3$

5c $V = \frac{1}{2} \cdot \frac{4}{3} \cdot \pi \cdot 3^3$
 $V = 18\pi \text{ cm}^3$
 $V \approx 56.5 \text{ cm}^3$

6a $V = \frac{1}{2} \cdot \frac{4}{3} \cdot \pi \cdot 4^3 + \frac{1}{3} \cdot \pi \cdot 4^2 \cdot 10$
 $V = 96\pi \text{ cm}^3$
 $V \approx 302 \text{ cm}^3$

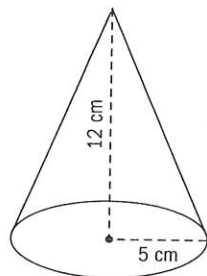
7 $V = \frac{1}{3} \cdot \pi \cdot 2^2 \cdot 13$
 $V = 35\pi$
 $V \approx 36.7 \text{ m}^3$
 $\approx 36700 \text{ cu. ft.}$

3 Find the volume of each figure.



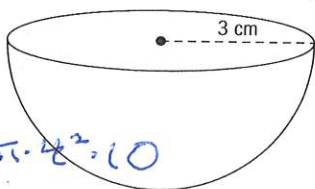
4 Find:

- a the curved surface area
- b the total surface area
- c the volume of this cone.



5 Find:

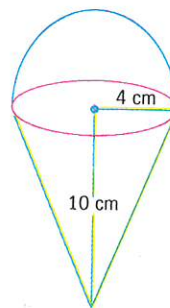
- a the curved surface area
- b the total surface area
- c the volume of this hemisphere.



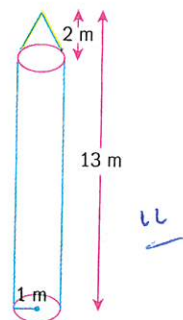
6 Benji has an ice cream cone. The ice cream cone is in the shape of a hemisphere sitting on top of a cone.

a What is the volume of the ice cream cone?

b What is the surface area?



7 A water tank is in the shape of a cone sitting on top of a cylinder. How many litres of water can it contain?



8 A cylindrical can holds three tennis balls. Each ball has a diameter of 6.7 cm, which is the same diameter as the interior of the cylinder, and the cylinder is filled to the top. How much space in the cylinder is not taken up by the tennis balls?

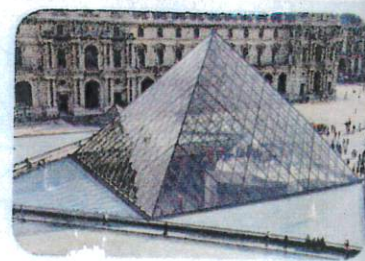
T.B. $V = 3 \cdot \frac{4}{3} \pi \cdot 3.35^3 \approx 472$

Can $V = \pi \cdot 3.35^2 \cdot 3 \cdot 6.7 \approx 208$

X SPACE $208 - 472 \approx 237 \text{ cm}^3$

Developing inquiry skills

The Louvre pyramid reaches a height of 21.6 m and its square base has sides of 35 m. Find the total volume of the pyramid.



474 $a = 4$

$V = \frac{1}{3} \cdot \pi \cdot 2^2 \cdot 13$
 $V = 36.7 \text{ m}^3$
 $\approx 36700 \text{ cu. ft.}$

SUPP WORK

12.12iv

11A p.470

11b

$$mid = \left(\frac{3}{2}, 2, 1 \right)$$

or
6A p.374

1c

$$\overline{OF} = \sqrt{3^2 + 4^2 + 2^2}$$

$$\overline{OF} = \sqrt{29} \approx 5.39$$

$$A: (3, 0, 0)$$

$$B: (3, 4, 0)$$

$$C: (0, 4, 0)$$

$$D: (0, 0, 2)$$

$$E: (3, 0, 2)$$

$$F: (3, 4, 2)$$

2a

$$mid = \left(\frac{-4+5}{2}, \frac{4+1}{2}, \frac{3+3}{2} \right) = \left(\frac{1}{2}, \frac{5}{2}, 3 \right)$$

3a

$$d = \sqrt{(2-4)^2 + (3-3)^2 + (5-1)^2} = \sqrt{20} = 2\sqrt{5} \approx 4.47$$

6A p.374

15

$$\overline{BF} = 4 \text{ cm}$$

$$\overline{BD} = \sqrt{5^2 + 12^2} = \sqrt{169} = 13 \text{ cm}$$

$$\overline{DF} = \sqrt{4^2 + 13^2} = \sqrt{185} \approx 13.6 \text{ cm}$$

$$\tan \theta = \frac{4}{13}$$

$$\theta \approx 17.1^\circ$$

6a

$$\overline{AC} = \sqrt{4^2 + 4^2} = \sqrt{32} = 4\sqrt{2} \approx 5.66$$

$$\overline{AG} = \sqrt{32 + 64} = \sqrt{96} = 4\sqrt{6} \approx 9.80$$

$$\tan \theta = \frac{8}{\sqrt{32}} \quad \theta \approx 54.7^\circ$$

$$\cos \theta = \frac{\sqrt{32}}{\sqrt{96}} \quad \theta \approx 54.7^\circ$$

11 ?