

Name Key

Date _____

Hour _____

Quarter 4 REVIEW – Chapter 10, Chapter 11, Chapter 12, and Chapter 13

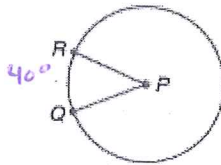
Chapter 10 Practice

1) Find the missing two (radius, diameter, and circumference) given the following:

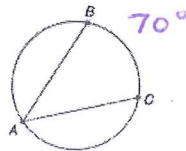
a) $r = 10$; $d = 20$; $C = 20\pi$

b) $r = 9$; $d = 18$; $C = 18\pi$

c) $r = 8$; $d = 16$; $C = 16\pi$

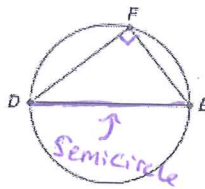
2) In $\odot P$, $m\angle QPR = 40$. Find $m\widehat{QR}$.

$$m\widehat{QR} = 40^\circ$$

3) If $m\widehat{BC} = 70$, find $m\angle BAC$.

$$\frac{70^\circ}{2} = 35^\circ$$

$$m\angle BAC = 35^\circ$$

4) \overline{DE} is a diameter. Find $m\angle DFE$.

$$90^\circ$$

5) Refer to $\odot X$. Find the length of tangent \overline{YZ} .

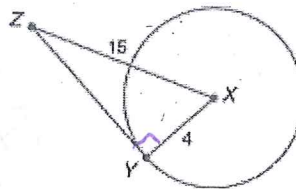
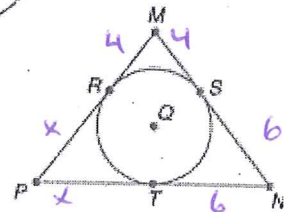
$$a^2 + b^2 = c^2$$

$$4^2 + b^2 = 15^2$$

$$16 + b^2 = 225$$

$$b^2 = 209$$

$$b = 14.5$$

6) Triangle MNP is circumscribed about $\odot Q$. If the perimeter of $\triangle MNP$ is 30, $MR = 4$, and $SN = 6$, find PT .

$$4 + 4 + 6 + 6 + x + x = 30$$

$$20 + 2x = 30$$

$$\underline{-20} \quad \underline{-20}$$

$$\frac{2x}{2} = \frac{10}{2}$$

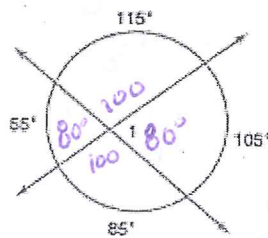
$$x = 5$$

7) Find $m\angle 1$.

$$\frac{55^\circ + 105^\circ}{2}$$

$$\frac{160^\circ}{2} = 80^\circ$$

$$m\angle 1 = 80^\circ$$

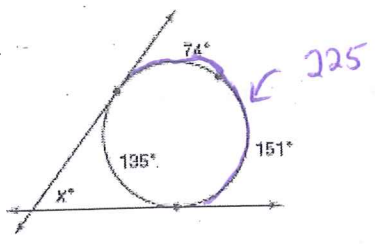


$$\frac{\text{Big arc} - \text{Small arc}}{2}$$

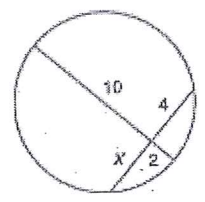
$$\frac{225 - 135}{2} = \frac{90}{2} = 45^\circ$$

$$m\angle X = 45^\circ$$

8) Find the value of x.



9) Find the value of x.



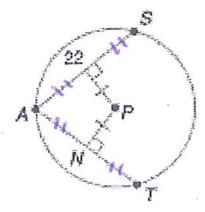
$$2 \cdot 10 = x - 4$$

$$20 = x - 4$$

$$\frac{20}{4} = \frac{x - 4}{4}$$

$$5 = x$$

10) Find NT.



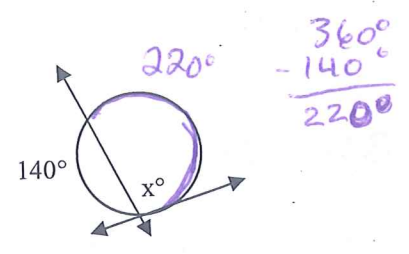
$$\frac{22}{2} = 11$$

11

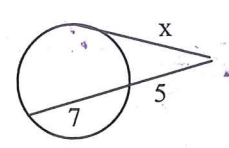
11) Find the value of x.

$$\frac{220^\circ}{2} = 110^\circ$$

$$m\angle X = 110^\circ$$



12) Find x.



$$x^2 = 5(5+7)$$

$$x^2 = 5 \cdot 12$$

$$\sqrt{x^2} = \sqrt{60}$$

$$x = \sqrt{60}$$

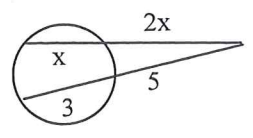
$$\sqrt{60}$$

$$4 \cdot 15$$

$$\sqrt{4} \cdot \sqrt{15}$$

$$x = 2\sqrt{15}$$

13) Find x.



$$2x(2x+x) = 5(5+3)$$

$$2x(3x) = 5(8)$$

$$6x^2 = 40$$

$$x^2 = \frac{40}{6}$$

$$x^2 = \frac{20}{3}$$

$$\sqrt{x^2} = \sqrt{\frac{20}{3}}$$

$$\sqrt{x^2} = \frac{\sqrt{20}}{\sqrt{3}}$$

$$x = \frac{2\sqrt{5}\sqrt{3}}{\sqrt{3}\sqrt{3}} = \frac{2\sqrt{15}}{3}$$

14) Find the center and radius of the circle with the following equation: $(x-3)^2 + (y+4)^2 = 121$

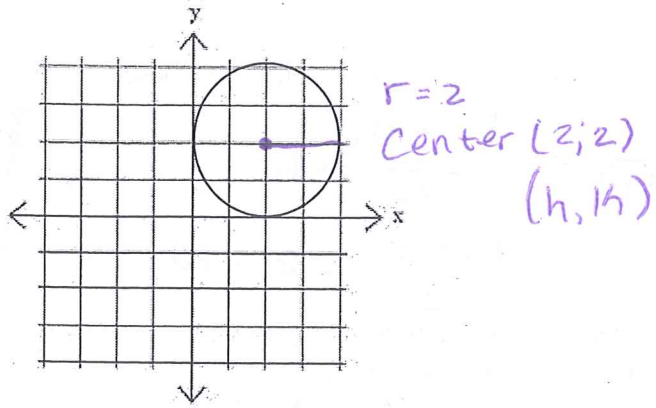
Center: (3 , -4)

Radius: 11

15) Write the equation of the following circle.

$$(x-h)^2 + (y-k)^2 = r^2$$

$$(x-2)^2 + (y-2)^2 = 4$$



Area Practice (Chapter 11)

1) Find the area of the shaded region. The unshaded quadrilateral is a square.

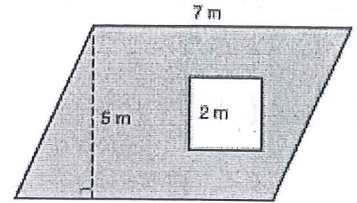
Area of Parallelogram - Area of Square

$$(B \cdot h) - (s^2)$$

$$5 \cdot 7 - 2^2$$

$$35 - 4$$

$$31 \text{ m}^2$$



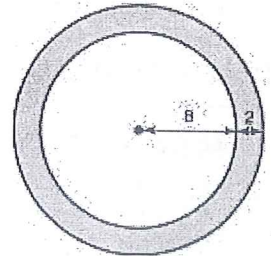
2) Find the exact area of the shaded region (ring shape) at the right.

$$\pi R^2 - \pi r^2$$

$$\pi \cdot 10^2 - \pi \cdot 8^2$$

$$100\pi - 64\pi$$

$$36\pi \text{ units}^2$$



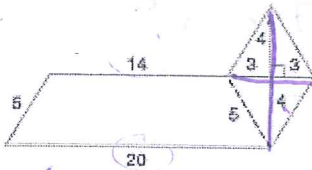
3) Find the area of this figure.

$$\frac{B_1 + B_2}{2} \cdot h + \frac{d_1 \cdot d_2}{2}$$

$$\frac{14 + 20}{2} \cdot 4 + \frac{8 \cdot 6}{2}$$

$$68 + 24$$

$$92 \text{ units}^2$$

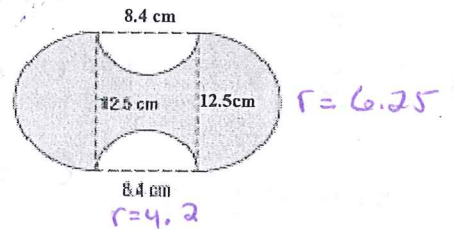


4) What is the area of the shaded figure? Round to the nearest tenth.

$$(\pi r^2 + l \cdot w) - \pi r^2$$

$$(122.7 + 105) - 55.4$$

$$172.3 \text{ cm}^2$$



5) Find the perimeter and area of the following parallelogram.

$$P = (l+l) + (w+w)$$

$$P = (32+32) + (24+24)$$

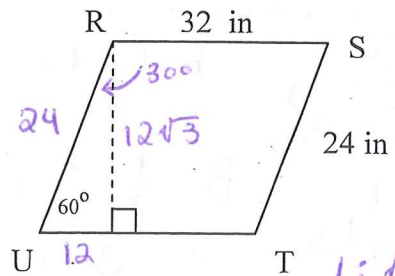
$$= 64 + 48$$

$$112 \text{ in}$$

$$A = b \cdot h$$

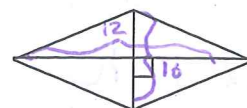
$$A = 32 \cdot 12\sqrt{3}$$

$$A = 665.1 \text{ in}^2$$



6) The diagonals of a rhombus are 10 cm and 12 cm long. Find the area of the rhombus.

$$\frac{d_1 \cdot d_2}{2} = \frac{10 \cdot 12}{2} = \frac{120}{2} = 60 \text{ cm}^2$$



$$1 : \sqrt{3} : 2$$

$$\frac{12}{12} \quad \frac{12}{12\sqrt{3}} \quad \frac{12}{24}$$

7) The area of a trapezoid is 120 cm^2 . One base is 10 cm and the altitude is 6 cm . Find the length of the other base.

$$\text{Area}_{\text{trapezoid}} = \frac{b_1 + b_2}{2} \cdot h$$

$$\frac{10 + b_2}{2} \cdot 6 = 120$$

$$\frac{3}{3} (10 + b_2) = \frac{120}{3}$$

$$10 + b_2 = 40$$

$$\frac{-10}{-10} \quad \frac{-10}{-10}$$

$$b_2 = 30$$

$$b_2 = 30 \text{ cm}$$

8) Find the **area** of a regular hexagon with an apothem of 8 m . Round your answer to the nearest tenth.

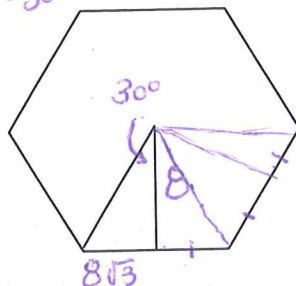
$$P = \frac{8\sqrt{3}}{3} \cdot 12$$

$$A = \frac{1}{2} P \cdot a$$

$$= \frac{1}{2} 55.4 \cdot 8$$

$$P = 55.4 \text{ m}$$

$$= \boxed{221.6 \text{ m}^2}$$



$$1 : \sqrt{3} : 2$$

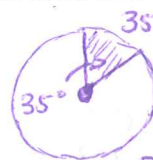
$$2 : 8 : ?$$

$$\frac{8 \cdot \sqrt{3}}{\sqrt{3}} = \frac{8\sqrt{3}}{3}$$

9) Find the area of a circle's sector whose radius and central angle are given. Round to the nearest tenth.
 $r = 5 \text{ cm}$; Central Angle = 35°

$$\frac{\text{Measure of Arc}}{\text{Measure of Circle}} = \frac{35^\circ}{360^\circ} = \frac{X}{\pi r^2}$$

$$\frac{\text{Area of Arc}}{\text{Area of Circle}}$$



$$\frac{35}{360} = \frac{X}{\pi \cdot 5^2}$$

$$\frac{35 \cdot 25\pi}{360} = X$$

$$X = 7.6 \text{ cm}^2$$

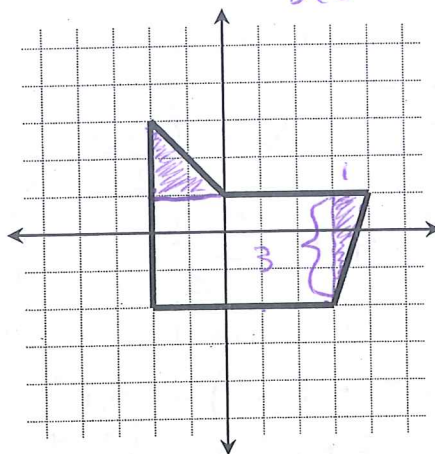
10) Find the area of the figure on the coordinate plane.

$$A_{\Delta} = \frac{1}{2} \cdot 2 \cdot 2 = 2 \text{ units}$$

$$A_{\Delta} = \frac{1}{2} \cdot 1 \cdot 3 = 1.5 \text{ units}$$

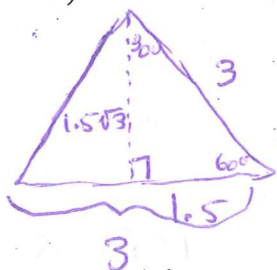
$$A_{\square} = 3 \cdot 5 = 15 \text{ units}$$

$$18.5 \text{ units}$$



Chapter 12 Practice

1) What is the surface area of the solid to the right?



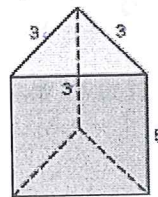
$$h = 1.5\sqrt{3}$$

$$b = 3$$

$$B = \frac{1}{2} \cdot 3 \cdot 1.5\sqrt{3}$$

$$B = 3.9$$

$$\left. \begin{aligned} L &= P \cdot h \\ L &= 9 \cdot 5 \\ L &= 45 \end{aligned} \right\}$$



$$T = L + 2B$$

$$= 45 + 2(3.9)$$

$$= 52.8 \text{ units}^2$$

2) Find the **exact** lateral area of a cylinder with a radius of 2 meters and a height of 6 meters .

$$L = 2\pi r h$$

$$L = 2\pi \cdot 2 \cdot 6$$

$$L = 24\pi$$

3) Find the exact surface area of a sphere with a radius of 5 centimeters.

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

$$T = 4 \cdot \pi \cdot 25$$

$$T = 4 \cdot \pi \cdot 5^2$$

$$T = 100\pi \text{ cm}^2$$

4) Find the exact surface area of a sphere with a diameter of 1.2 meters.

$$D = 1.2$$

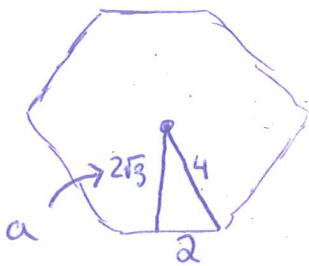
$$r = .6$$

$$T = 4\pi \cdot .6^2$$

$$T = 4\pi \cdot .36$$

$$T = 1.44\pi \text{ m}^2$$

5) Find the surface area of this right prism with regular hexagonal bases. (Round to the nearest tenth.)



$$L = P \cdot h$$

$$P = 4 \cdot 6$$

$$P = 24 \quad h = 5$$

$$L = 24 \cdot 5$$

$$L = 120 \text{ units}^2$$

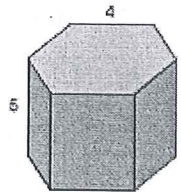
$$A = \frac{1}{2} P a$$

$$= \frac{1}{2} 24 \cdot 2\sqrt{3}$$

$$= 41.6$$

$$T = L + 2B$$

$$T = 120 + 2(41.6)$$



$$T = 203.2 \text{ units}^2$$

6) Find the surface area of the right cylinder. (Round to the nearest whole number.)

$$L = 2\pi r h$$

$$= 2\pi \cdot 8 \cdot 22$$

$$= 352\pi$$

$$B = \pi r^2$$

$$= \pi \cdot 8 \cdot 8$$

$$= 64\pi$$

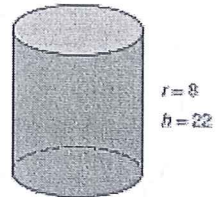
$$T = L + 2B$$

$$T = 352\pi + 2(64\pi)$$

$$T = 352\pi + 128\pi$$

$$T = 480\pi \text{ units}^2$$

$$\approx 1,508.0 \text{ units}^2$$



7) Find the surface area of the regular pyramid. Round to the nearest tenth if needed.

$$L = \frac{1}{2} \cdot P \cdot l$$

$$P = 8 \cdot 4$$

$$P = 32$$

$$l = 9$$

$$l = 3$$

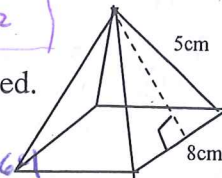
$$a^2 + l^2 = 5^2 \quad L = \frac{1}{2} \cdot 32 \cdot 3$$

$$4^2 + l^2 = 5^2 \quad L = 16 \cdot 3$$

$$16 + l^2 = 25 \quad L = 48$$

$$T = 48 + 64$$

$$T = 112 \text{ cm}^2$$



8) Find the exact lateral area of the cone.

$$L = \pi r l$$

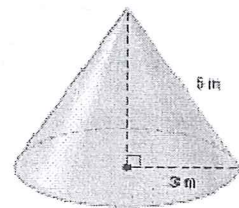
$$L = 15\pi$$

$$L = \pi \cdot 3 \cdot 5$$

$$T = L + \pi r^2$$

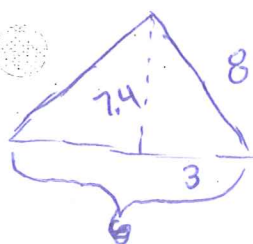
$$T = 15\pi + 9\pi$$

$$T = 24\pi$$



Chapter 13 Practice

1) Find the volume of the right prism.



$$B = \frac{1}{2} b \cdot h$$

$$B = \frac{1}{2} \cdot 6 \cdot 7.4$$

$$B = 22.2$$

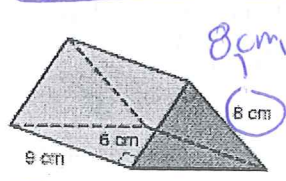
area of Base

$$V = B \cdot h$$

$$22.2 \cdot 9$$

$$V = 199.8$$

$$\approx 200 \text{ cm}^2$$



$$a^2 + b^2 = c^2$$

$$3^2 + b^2 = 8^2$$

$$9 + b^2 = 64$$

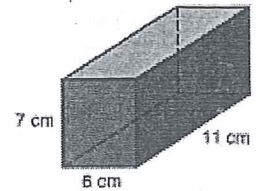
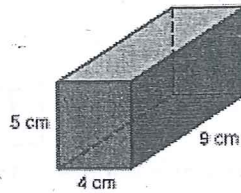
$$\sqrt{b^2} = \sqrt{55}$$

$$b = 7.4$$

2) Are the following prisms similar? If so, what is the scale factor? Are they congruent?

$$\frac{5}{7} \times \frac{4}{6} \times \frac{9}{11}$$

Not similar
Not \cong



3) Find the volume of the following pyramid given the height is 10cm.

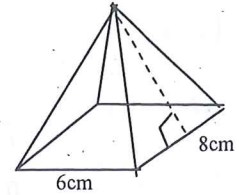
$$V = \frac{1}{3} B \cdot h$$

area of base

$$V = \frac{1}{3} \cdot (6 \cdot 8) \cdot 10$$

$$= \frac{1}{3} (48) \cdot 10$$

$$= 160 \text{ cm}^3$$



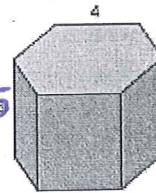
4) Find the volume of the following prism.

$$V = B \cdot h$$

$$B = 41.6 \text{ (Refer to problem \#5 ch. 12)}$$

$$V = 41.6 \cdot 5$$

$$V = 208 \text{ units}^3$$

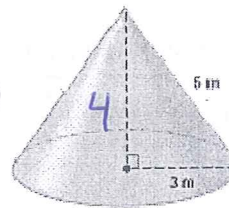


5) Find the volume of the following cone. (Round to the nearest tenth.)

$$V = \frac{1}{3} \pi r^2 \cdot h$$

$$V = \frac{1}{3} \cdot \pi \cdot 3^2 \cdot 4$$

$$= 12\pi \approx 37.7 \text{ m}^3$$



$$a^2 + b^2 = c^2$$

$$3^2 + b^2 = 5^2$$

$$9 + b^2 = 25$$

$$b^2 = 16$$

$$b = 4$$

6) Find the volume of the following cylinder.

(Give the exact answer and rounded to the nearest tenth.)

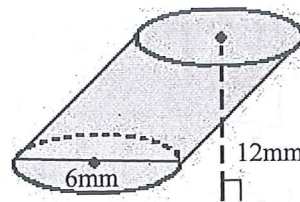
$$r = 3$$

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

$$h = 12$$

$$V = \pi \cdot 3^2 \cdot 12$$

$$V = 339.3 \text{ mm}^3$$



7) Find the volume of a sphere with a radius of 5 centimeters. (Round to the nearest tenth.)

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

$$\frac{4}{3} \cdot \pi \cdot 5^3 = 523.6 \text{ cm}^3$$

8) Find the volume of a hemisphere with a diameter of 10 meters. (Round to the nearest tenth.)

$$r = 5$$

$$V = \frac{1}{2} \cdot \frac{4}{3} \cdot \pi 5^3$$

$$261.8 \text{ m}^3$$

9) Two solids are similar with a scale factor of $\frac{2}{5}$. What is the ratio of their surface areas?

If the larger solid has a volume of 500 in^3 , what is the volume of the smaller solid?

Scale: $2 : 5$

Surface Area: $4 : 25$

Volume: $8 : 125$

$$500 \cdot \frac{8}{125} = \frac{X}{500}$$

$$V = 32 \text{ in}^3$$