Name_____ Date_____

Chapter 10 Review

1) List the formulas for the following

Area of a Rectangle
$= lw$ or bh

Area of a Parallelogram
$= bh$

Area of a Triangle
$= \frac{1}{2}bh$

Area of a Trapezoid
$= \frac{1}{2}(b_1 + b_2)h$

Area of a Kite
$= \frac{1}{2}d_1 d_2$

Area of a Rhombus
$= \frac{1}{2}d_1 d_2$

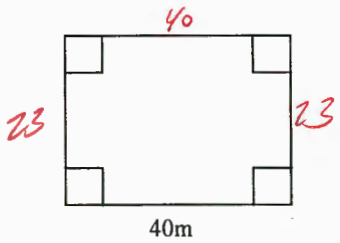
Area of a Regular Polygon
$= \frac{1}{2}san$ or $\frac{1}{2}Pa$

Circumference
$= \pi d$ or $2\pi r$

Arc Length
$= \frac{x}{360}\pi d$

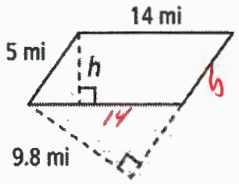
Area of a Circle
$= \pi r^2$

2) The figure is a rectangle with perimeter 126 m. What is the area?



$A = bh$
$= 40 \times 23$
$= 920 m^2$

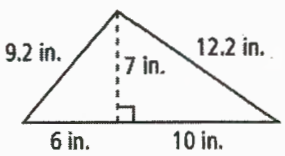
3) Find the value of h.



$A = bh$
$= 5 \times 9.8$
$= 49 mi^2$
$A = bh$
$49 = 14 \times h$
$h = 3.5 mi$

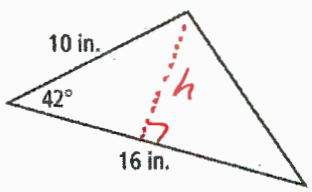
Find the area of the following triangles. Round to the nearest 0.1 if necessary.

4)



$A = \frac{1}{2}bh$
$= \frac{1}{2} \times 16 \times 7$
$= 56 in^2$

5)

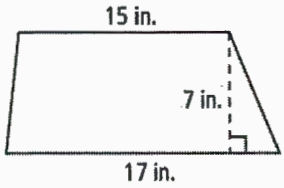


$\sin 42° = \frac{h}{10}$
$h = 6.7 in$

$A = \frac{1}{2}bh$
$\approx \frac{1}{2} \cdot 16 \cdot 6.7$
$\approx 53.6 in^2$

Find the area of the following trapezoids. Round to the nearest 0.1 if necessary.

6)



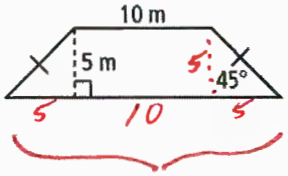
$A = \frac{1}{2}(b_1 + b_2)h$

$= \frac{1}{2}(15+17)7$

$= \frac{1}{2}(32)7$

$= 112 \text{ in}^2$

7)



20m

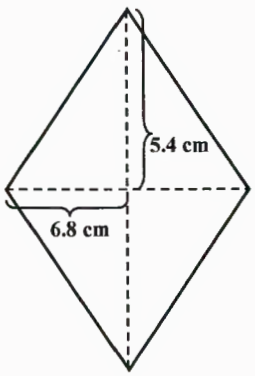
$A = \frac{1}{2}(b_1 + b_2)h$

$= \frac{1}{2}(10+20)5$

$= 75 \text{ m}^2$

Find the area of the following kite and rhombus trapezoids. Round to the nearest 0.1 if necessary.

8)



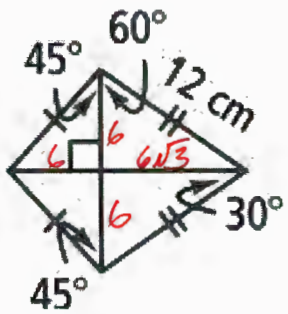
$A = \frac{1}{2}d_1 d_2$

$= \frac{1}{2} \times 10.8 \times 13.6$

$= 73.44$

$\approx 73.4 \text{ cm}^2$

9)



$A = \frac{1}{2}d_1 d_2$

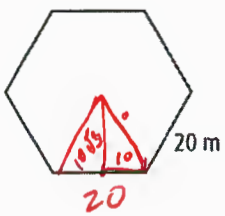
$= \frac{1}{2}(12)(6+6\sqrt{3})$

$\approx \frac{1}{2}(12)(16.4)$

$\approx 98.4 \text{ cm}^2$

Find the area of the following regular polygons. Round to the nearest 0.1 if necessary.

10)



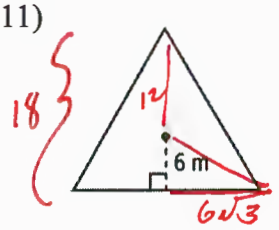
$A = \frac{1}{2}sap$

$A = \frac{1}{2} \times 20 \times 10\sqrt{3} \times 6$

$= 600\sqrt{3}$

$\approx 1039.2 \text{ m}^2$

11)



$12\sqrt{3}$

$A = \frac{1}{2}bh$

$= \frac{1}{2} \times 12\sqrt{3} \times 18$

$= 108\sqrt{3}$

$\approx 187.1 \text{ m}^2$

12) The shortest side of a pentagon is 4 cm. The shortest side of a similar pentagon is 9 cm. The area of the larger pentagon is 243 cm^2. What is the area of the smaller pentagon?

Ratio of sides $\frac{4}{9}$ → Ratio of areas $\frac{16}{81}$

$\frac{16}{81} = \frac{x}{243}$

$x = 48\ cm^2$

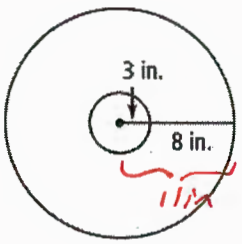
13) The area of a regular nonagon is 34 m^2. What is the area of a regular nonagon with sides five times the sides of the smaller nonagon?

Ratio of sides $\frac{1}{5}$ → Ratio of areas $\frac{1}{25}$

$\frac{1}{25} = \frac{34}{x}$

$x = 850\ m^2$

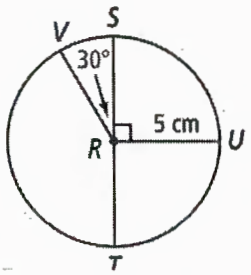
14) The wheel of a car is shown at the right. How far does the hubcap of the tire travel in one complete rotation? How far does the tire itself travel in one complete rotation? Leave in exact form.



$C = \pi d$
$= \pi \times 6$
$= 6\pi$ in

$C = \pi d$
$= \pi \times 22$
$= 22\pi$ in

Find the ARC LENGTH OF THE FOLLOWING. Leave your answers in terms of π.



15) $\overset{\frown}{SV}$

$AL = \frac{x}{360} \pi d$
$= \frac{30}{360} \cdot \pi \cdot 10$
$= \frac{1}{12} \cdot \pi \cdot 10$
$= \frac{10}{12}\pi = \boxed{\frac{5}{6}\pi\ cm}$

16) $\overset{\frown}{UV}$

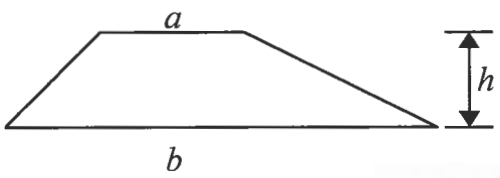
$AL = \frac{x}{360} \pi d$
$= \frac{120}{360} \times \pi \times 10$
$= \frac{1}{3} \times \pi \times 10$
$= \boxed{\frac{10\pi}{3}\ cm}$

17) $\overset{\frown}{SUT}$

$AL = \frac{180}{360} \times \pi \times 10$
$= \boxed{5\pi\ cm}$

18) The trapezoid below has an area that is $756\ cm^2$

$a = 39$ cm. $h = 18$ cm.



$b =$ 45 cm

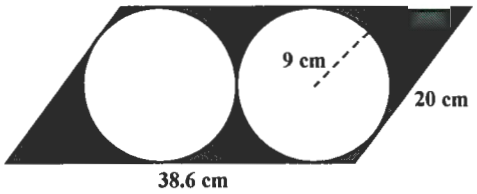
$A = \frac{1}{2}(b_1 + b_2)h$

$756 = \frac{1}{2}(39 + b)18$

$84 = 39 + b$

$b = 45$ cm

19) Find the shaded region in the parallelogram below. Round to the nearest 0.1 if necessary.



Area = Parallelogram − 2 Circles

$= bh - 2\pi r^2$

$= 38.6 \times 18 - 2 \times 3.14 \times 9^2$

$= 694.8 - 508.68$

$= 186.12$

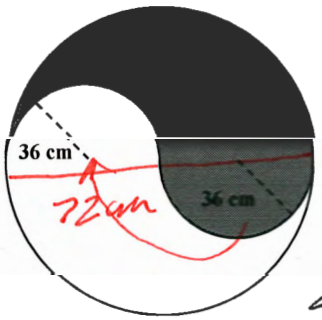
$\approx 186.1\ cm^2$

20) The trapezoid below has an area that is $756\ cm^2$

a = 39 cm. h = 18 cm.

b = _____

21) Find the area of the shaded region. Leave in exact form.



Shaded Area = _____

$A = \frac{1}{2}(\text{Circle})$

$= \frac{1}{2}\pi r^2$

$= \frac{1}{2} \times \pi \times 72^2$

$= \frac{1}{2}(5184\pi)\ cm^2$

$= 2592\pi\ cm^2$