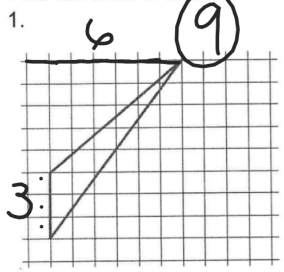
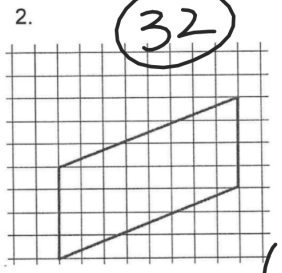
Find the area of each. Round to the nearest hundredth unless noted otherwise.

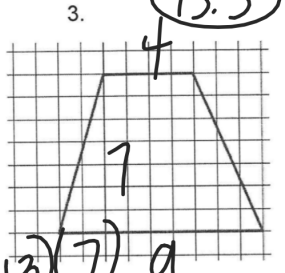
1.




2.

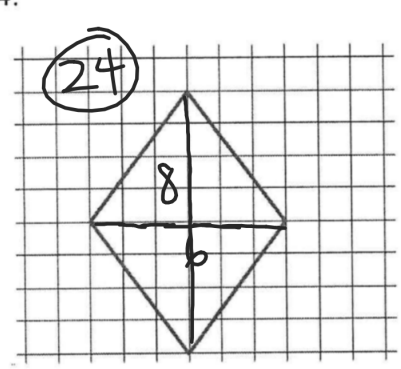



3. 45.5

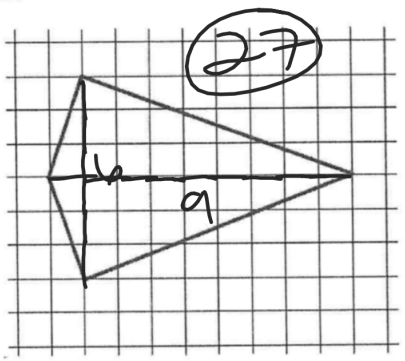



$\frac{(13)(7)}{2}$

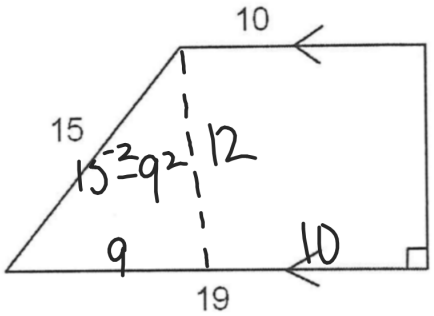
4.




5.



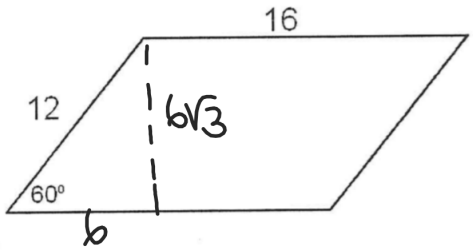

6. Trapezoid




$A = \frac{1}{2}(10+19)(12)$

$= 174$

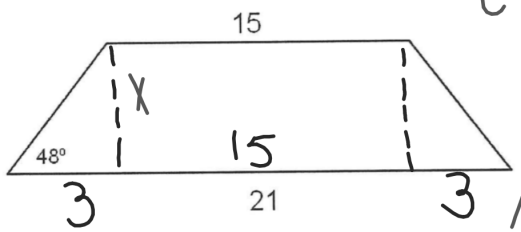
7. Find the EXACT area of this Parallelogram.




$A = 16 \cdot 6\sqrt{3}$

$= 96\sqrt{3}$

8. Find the area of this Isosceles Trapezoid.



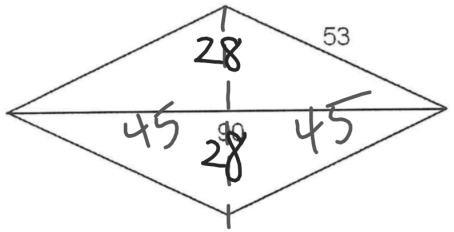

$\tan 48 = \frac{x}{3}$

$x = 3.33$

$A = \frac{1}{2}(36)(3.33)$

$59.94$

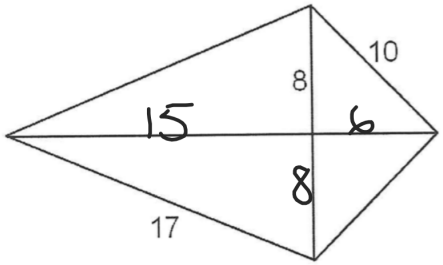
9. Rhombus




$A = \frac{1}{2}(56)(90)$

$= 2520$

10. Kite

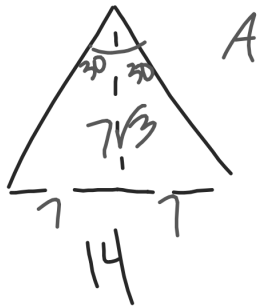



$\frac{(21)(16)}{2}$

$= 168$

11. Find the EXACT area of a regular Hexagaon with side length of 14 inches.

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

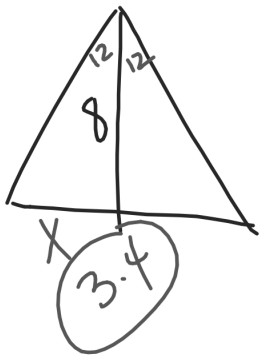



$A = \frac{1}{2}(7\sqrt{3})(84)$

$= 294\sqrt{3}$ in$^2$

12. Find the area to the nearest tenth of a regular 15-gon with apothem of 8 cm.

$\frac{(8)(51)}{2} = 204$



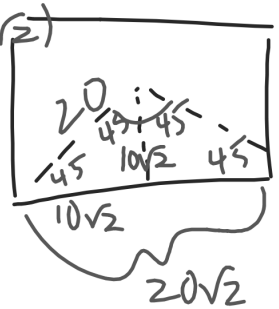

$\tan 12 = \frac{X}{8}$

$X = 1.7$

13. Find the area of a square to the nearest hundredth with radius of 20 ft.

$A = \frac{1}{2}(10\sqrt{2})(80\sqrt{2})$

$= 800$




$\frac{20}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$\frac{20\sqrt{2}}{2}$

$10\sqrt{2}$

Geometry 12-2: Chords and Arcs

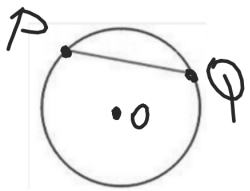
**Objective 1: I can use congruent chords, arcs, and central angles in circles.**

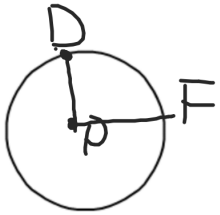
A segment whose endpoints are on a circle is called a chord

1. Label the circle below left as O.
2. Label its chord in the circle as $\overline{PQ}$.
3. By drawing chord $\overline{PQ}$, we also get its related arc, $\overset{\frown}{PQ}$. An arc is a part of the circumference of a circle.

A central angle of a circle is an angle formed by any two radii in a circle. The vertex is the center of the circle.

4. Label the circle at the right as P.
5. Draw its central angle $\angle DPF$




The following theorem is about related central angles, chords, and arcs. It says, for example, that if two central angles in a circle are congruent, then so are the two chords and two arcs that the angles intercept.

**Theorem 12-4:**
Within a circle or congruent circles

(1) $\cong$ CA. have $\cong$ chords

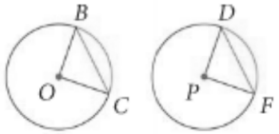
(2) $\cong$ chords have $\cong$ arcs

(3) $\cong$ arcs have $\cong$ CAs

We generally use Theorem 12-4 to show that parts in a circle are congruent.

Example 1: In the diagram below, $\odot O \cong \odot P$.

A) Given that $\overset{\frown}{BC} \cong \overset{\frown}{DF}$, what can you conclude?




$\angle O \cong \angle P$ (3)

$\overline{BC} \cong \overline{DF}$ (1)

B) If we are told in the diagram above that $\overline{BC} \cong \overline{DF}$ instead, then what can you conclude?

$\overset{\frown}{BC} \cong \overset{\frown}{DF}$ $\angle O \cong \angle P$

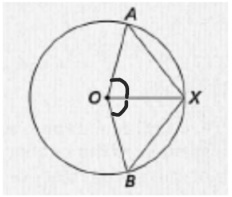
**Theorem 12-5**
Within a circle or in congruent circles

(1) chords equidistant from the center are $\cong$.

(2) $\cong$ chords are eq. from center

We generally use Theorem 12-5 to find missing lengths in circles.

QC 1: In the circle below, radius $\overline{OX}$ bisects $\angle AOB$. What can you conclude?

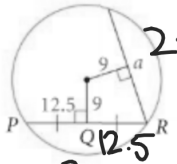



$\angle AOX \cong \angle BOX$

$\overline{AX} \cong \overline{BX}$

$\overset{\frown}{AX} \cong \overset{\frown}{BX}$

Example 2: What is the value of $a$ in the circle below?



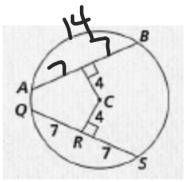

25

12.5

25

QC 2: What is the value of $x$ in the circle below?


C) Find AB in the circle below.




**Objective 2: I can recognize properties of lines through the center of a circle.**

Below are some more theorems about lines through circles.

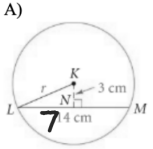
**Theorem 12-6:**
In a circle, a diam that is ⊥ to a chord bisects the chord and its arcs.

**Theorem 12-7:**
In a circle, a diam that bisects a chord (that is not a diameter) is ⊥ to the chord.

**Theorem 12-8:**
In a circle, the ⊥ bisector of a chord contains the center of the circle.

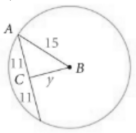
Example 3: Find each missing length in the circles below.

A)




$r^2 = 7^2 + 3^2 \approx 7.6\text{cm}$

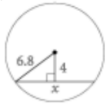
B)




$BC \perp AC$

$y \approx 10.2$

C)



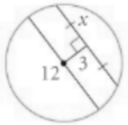

$x = 5.5 * 2$

$\approx 11$

**Practice Problems: Find the value of each variable.**

1.


2.




3.


4.


Hwk #29 -

Sect. 12-2

Page 673

Problems 1-8, 11-16

IXL #15 - U.5 & U.7 due Friday at 4pm!