

Quarter 4 Review

Simplify each expression.

1) $\frac{1}{n+1} \cdot \frac{n^2 - 9n - 10}{n+3}$

- A) $\frac{n-2}{9}$ B) $\frac{n-7}{2}$
 C) $\frac{n+3}{n-1}$ **D) $\frac{n-10}{n+3}$**

2) $\frac{x-6}{5x} \div \frac{x^2+4x-60}{6x+60}$

- A) $\frac{7x^2}{x-3}$ **B) $\frac{6}{5x}$**
 C) $3x$ D) $x-10$

FACTOR!

$\frac{\cancel{x-6}}{5x} \cdot \frac{6(\cancel{x+10})}{(\cancel{x-6})(\cancel{x+10})} = \frac{6}{5x}$

Identify the holes and vertical asymptotes of each.

3) $f(x) = \frac{x^2 - 3x + 2}{x^2 - 4x + 3}$

$= \frac{(x-1)(x-2)}{(x-1)(x-3)}$

- ~~A) Vertical Asym.: $x=3, x=1$
 Holes: None~~
**B) Vertical Asym.: $x=3$
 Holes: $x=1$**
~~C) Vertical Asym.: $x=2, x=1$
 Holes: None~~
 D) Vertical Asym.: $x=2$
 Holes: $x=1$

denom. \rightarrow VA $x-3=0$ | HA $y=1$
 $x=3$
 Hole at $x-1=0$
 $x=1$

Use the information provided to write the standard form equation of each circle.

4) Center: (1, 0)
 Radius: 8

- A) $(x-3)^2 + (y-2)^2 = 4096$
B) $(x-1)^2 + y^2 = 64$
 C) $(x-2)^2 + y^2 = 64$
 D) $(x-1)^2 + y^2 = 4096$

5) Center: (-3, 8)
 Radius: 4

- A) $(x+7)^2 + (y-2)^2 = 16$
B) $(x+3)^2 + (y-8)^2 = 16$
 C) $(x+8)^2 + (y+3)^2 = 16$
 D) $(x-6)^2 + (y-5)^2 = 256$

Identify the center and radius of each.

6) $(x-9)^2 + (y+4)^2 = 16$

- A) Center: (-4, -9)
 Radius: 4
 B) Center: (-9, 4)
 Radius: 2
**C) Center: (9, -4)
 Radius: 4**
 D) Center: (5, 11)
 Radius: 4

$(x^2 + 22x + \frac{121}{4}) + (y^2 - 6y + 9) = \frac{-81}{4} + \frac{121}{4}$
 $\frac{(-6)}{2} = (-3)^2 = 9$

7) $x^2 + y^2 + 22x - 6y + 81 = 0$

- A) Center: (-11, 3)
 Radius: 7**
 B) Center: (-11, 3)
 Radius: 49
 C) Center: (3, 11)
 Radius: 7
 D) Center: (-11, -3)
 Radius: 7

$(x+11)^2 + (y-3)^2 = 49$

D → R mult. by $\frac{\pi}{180}$ / R → D mult. by $\frac{180}{\pi}$

Convert each degree measure into radians and each radian measure into degrees.

8) -320°

A) $-\frac{31\pi}{9}$

B) $-\frac{11\pi}{6}$

C) $-\frac{31\pi}{18}$

D) $-\frac{16\pi}{9}$

9) $\frac{4\pi}{3}$

A) 480°

B) 230°

C) 220°

D) 240°

± 360 / $\pm 2\pi$

CCW +
CW -

Find a positive and a negative coterminal angle for each given angle.

10) -255°

A) 195° and -615°

B) 285° and -705°

C) 105° and -615°

D) 195° and -435°

11) 175°

A) 445° and -5°

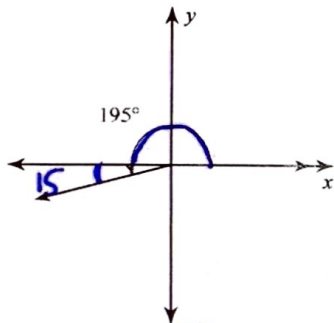
B) 445° and -275°

C) 535° and -185°

D) 715° and -185°

Find the reference angle. (acute, +, to the x-axis)

12)



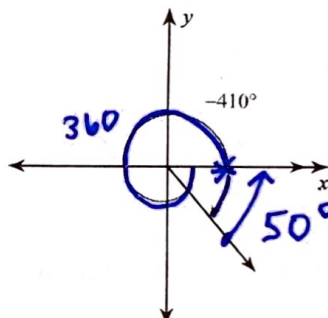
A) 45°

B) 15°

C) 60°

D) 75°

13)



A) 85°

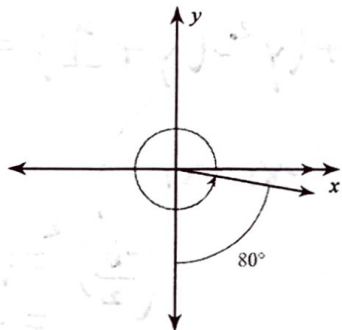
B) 20°

C) 50°

D) 40°

Find the measure of each angle.

14)



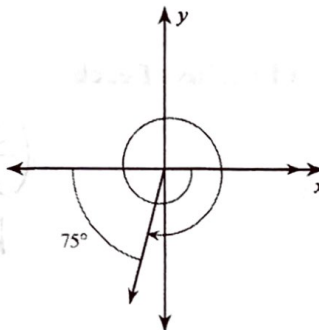
A) 10°

B) 360°

C) 350°

D) 345°

15)



A) -455°

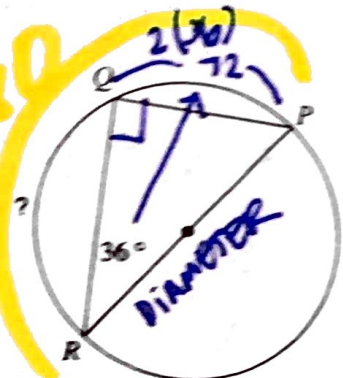
B) -445°

C) -305°

D) -465°

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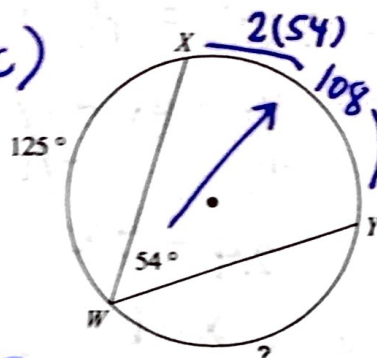
Find the measure of the arc or angle indicated.



Inscribed $\angle = \frac{1}{2}(\text{arc})$

$180 - 72$
 108

- A) 136° B) 79°
C) 108° D) 64°

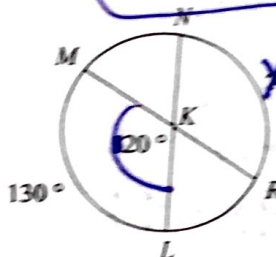


360
 $- 108$
 $- 125$

- A) 127° B) 144°
C) 89° D) 125°

Find the measure of the arc or angle indicated. Assume that lines which appear tangent are tangent.

Insider: angle = $\frac{1}{2}$ (sum of arcs)



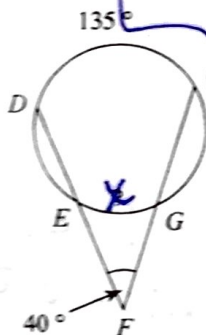
$x \cdot 2 = 120 = \frac{1}{2}(130 + x)$
 $240 = 130 + x$
 $-130 \quad -130$

$110 = x$

- A) 160° B) 100°
C) 110° D) 135°

OUTSIDER \angle :

angle = $\frac{1}{2}$ (Big - small Arc Arc)



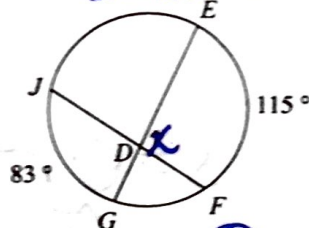
$2 \cdot 40 = \frac{1}{2}(135 - x)$

$80 = 135 - x$
 $-135 \quad -135$

$-55 = -x$
 $x = 55$

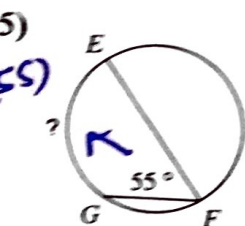
- A) 45° B) 30°
C) 55° D) 35°

Insider!



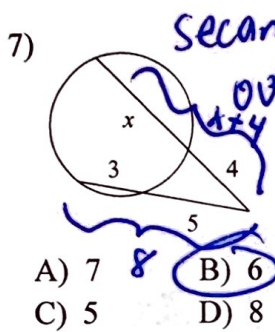
$x = \frac{1}{2}(115 + 83)$

- A) 116° B) 99°
C) 101° D) 119°



- A) 150° B) 145°
C) 110° D) 139°

Solve for x . Assume that lines which appear tangent are tangent.



Secants:
outside · whole = outside · whole

$$5(8) = 4(x+4)$$

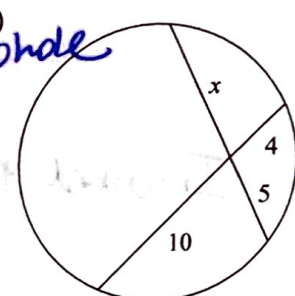
$$40 = 4x + 16$$

$$-16 \quad -16$$

$$24 = 4x$$

$$x = 6$$

- A) 7
B) 6
C) 5
D) 8



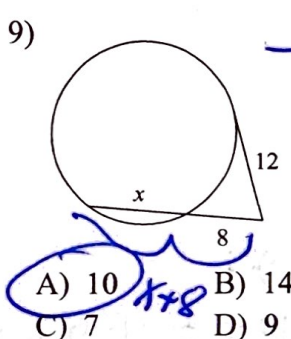
CHORDS:
part · part = part · part

$$5 \cdot x = 4 \cdot 10$$

$$5x = 40$$

$$x = 8$$

- A) 5
B) 8
C) 6
D) 10

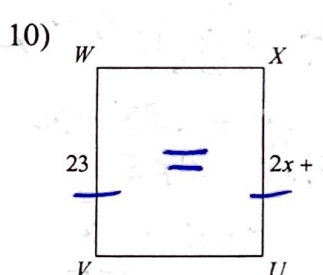


SECANT/TANGENT
outside · whole = tangent²

$$8(x+8) = 12^2$$

- A) 10
B) 14
C) 7
D) 9

Solve for x . Each figure is a parallelogram.

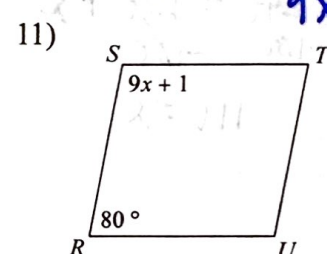


$$2x+1 = 23$$

$$2x = 22$$

$$x = 11$$

- A) 1
B) 7
C) 11
D) 6



$$9x+1 + 80 = 180$$

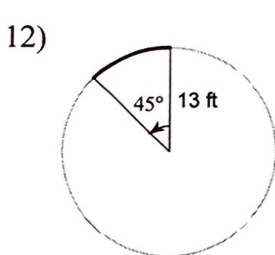
$$9x+81 = 180$$

$$9x = 99$$

$$x = 11$$

- A) 9
B) 2
C) 5
D) 11

Find the length of each arc.



$S = \theta r$
↑ must be in radians!

$$45 \cdot \frac{\pi}{180} = \frac{\pi}{4} = \theta$$

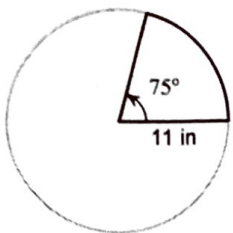
- A) 421200π ft
B) $\frac{169\pi}{8}$ ft
C) $\frac{225\pi}{4}$ ft
D) $\frac{13\pi}{4}$ ft

$$S = \frac{\pi}{4} \left(\frac{13}{1} \right)$$

$$A = \frac{1}{2} r^2 \theta \leftarrow \text{most be in radians!}$$

Find the area of each sector.

13)



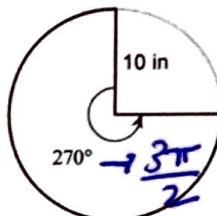
$$\frac{75 \cdot \pi}{180} = \frac{5\pi}{12} = \theta$$

$$A = \frac{1}{2} (11)^2 \left(\frac{5\pi}{12} \right)$$

A) $\frac{55\pi}{12} \text{ in}^2$ B) $\frac{15\pi}{4} \text{ in}^2$

C) $\frac{605\pi}{24} \text{ in}^2$ D) $\frac{22\pi}{3} \text{ in}^2$

14)



$$A = \frac{1}{2} (10)^2 \frac{3\pi}{2}$$

A) $75\pi \text{ in}^2$

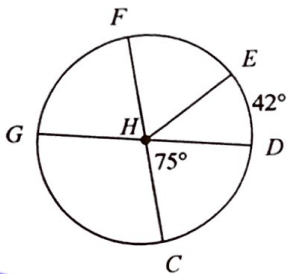
B) $\frac{297\pi}{2} \text{ in}^2$

C) $15\pi \text{ in}^2$

D) $4\pi \text{ in}^2$

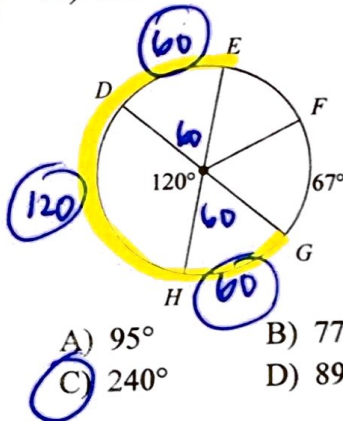
Find the measure of the arc or central angle indicated. Assume that lines which appear to be diameters are actual diameters.

15) $m\angle FHD$



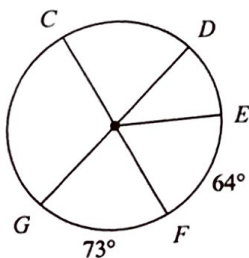
- A) 105° B) 72°
C) 140° D) 117°

16) $m\widehat{GHE}$



- A) 95° B) 77°
C) 240° D) 89°

17) $m\widehat{EGD}$



- A) 86° B) 140°
C) 135° D) 317°