Geometry Review 3.1 (KEY)
Algebra 2

Find the missing measures in each circle. Give circumference and area in terms of pi and to the nearest tenth.

1) r = 26m /2 = 13m d = 26 m C = 26πm = 81.7 m A = $\pi(13m)^2 = 169\pi m^2$ = 530.9 m^2

2) r = 4.5 ft d = (4.5 ft)2 = 9 ft C = 9πft = 28.3 ft A = 65 ft^2

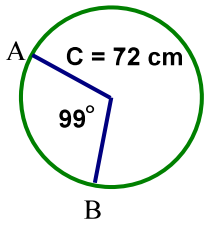
$A = \pi r^2$

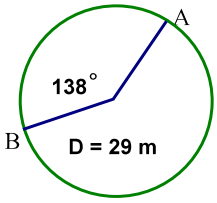
$\frac{65ft^2}{\pi} = \frac{\pi r^2}{\pi}$

$20.7ft^2 = r^2$

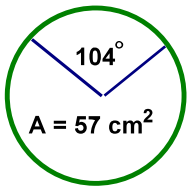
r = 4.5 ft

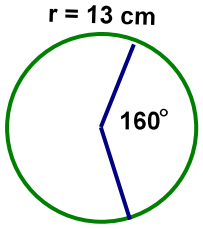
Find the length of minor arc AB using a proportion.

3) 

4) 

Find the area of the sector using a proportion.

5) 

6) 

$\frac{99°}{360°} = \frac{x}{72m}$	$\frac{138°}{360°} = \frac{x}{29\pi m}$	$\frac{104°}{360°} = \frac{x}{57cm^2}$	$\frac{160°}{360°} = \frac{x}{169\pi m^2}$
$x = 19.8m$	$x = 34.9m$	$x = 16.6cm^2$	$x = 236m^2$

Given the length of one side of the 45-45-90 triangle at the right find the other two sides to the nearest tenth..

7) J = 14

K = 14

L = $14\sqrt{2} = 19.8$

8) K = $12\sqrt{2}$

J = $12\sqrt{2}$

L = $12\sqrt{2} \cdot \sqrt{2} = 12(2) = 24$

9) L = $17\sqrt{2}$

K = J = $\frac{17\sqrt{2}}{\sqrt{2}} = 17$

10) L = 32

K = J = $\frac{32}{\sqrt{2}} = 22.6$

Given the length of one side of the 30-60-90 triangle at the right find the other sides to the nearest tenth.

11) U = 6

V = 12

T = $6\sqrt{3} = 10.4$

12) U = $7\sqrt{3}$

V = $(7\sqrt{3})2 = 14\sqrt{3} = 24.2$

T = $(7\sqrt{3})\sqrt{3} = 7(3) = 21$

13) V = 44

U = 44/2 = 22

T = $22\sqrt{3} = 38$

14) T = $10\sqrt{3}$

U = $\frac{10\sqrt{3}}{\sqrt{3}} = 10$

V = $10(2) = 20$

15) T = 38

U = $\frac{38}{\sqrt{3}} = 21.9$

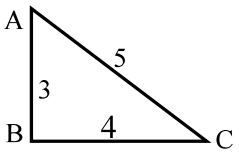
V = $(21.9)2 = 43.8$

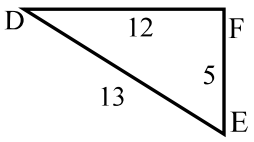
16) V = $4\sqrt{3}$

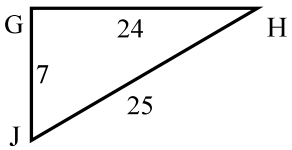
U = $\frac{4\sqrt{3}}{2} = 2\sqrt{3} = 3.5$

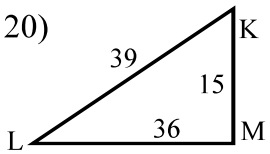
T = $4\sqrt{3}(\sqrt{3}) = 4(3) = 12$

Give the six trigonometric ratios for the following triangles.

17) 

18) 

19) 

20) 

$\frac{3}{4}, \frac{4}{3}, \frac{4}{5}, \frac{5}{4}, \frac{5}{3}, \frac{3}{5}$

List all six ratios for each triangle.

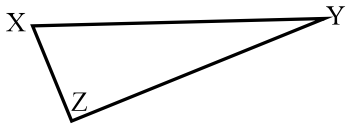
Use ΔXYZ to name the hypotenuse, opposite side, and adjacent side for each reference angle.

21) ∠X

Hyp. - XY
Opp. - YZ
Adj. - XZ

22) ∠Y

Hyp. - XY
Opp. - XZ
Adj. - YZ



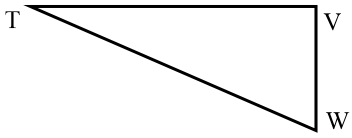
Use ΔTVW to name the hypotenuse, opposite side, and adjacent side for each reference angle.

23) ∠T

Hyp. - TW
Opp. - VW
Adj. - TV

24) ∠W

Hyp. - TW
Opp. - TV
Adj. - WV



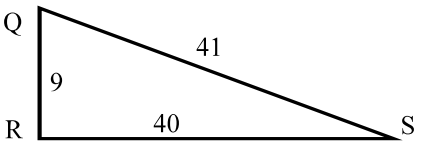
Use ΔQRS to find each trig. ratio. Use a calculator to approximate each ratio to four decimal places.

25) $\frac{Opposite \angle Q}{Hypostenuse} =$

$= \frac{40}{41} = .9756$

26) $\frac{Adjacent \angle S}{Opposite \angle S} =$

$\frac{40}{9} = 4.4444$



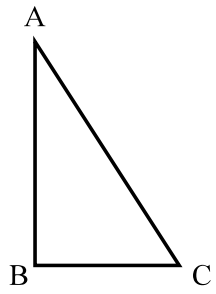
27) $\frac{Hypotenuse}{Adjacent \angle S} =$

$= \frac{41}{40} = 1.0250$

28) $\frac{Opposite \angle R}{Adjacent \angle R} =$

Angle R cannot be used as a reference angle!

In the figure at the right the ratio $\frac{Opposite\angle A}{Adjacent\angle A}=\frac{8}{15}$.



29) BC = 16, find AB and AC.

$\frac{8}{15}=\frac{16}{AB}$ $16^2+30^2=AC^2$

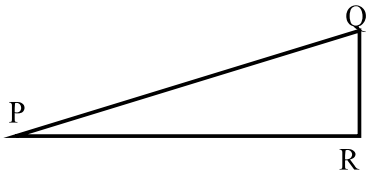
$AB=30$ $34=AC$

30 AB = 75, find BC and AC.

$\frac{8}{15}=\frac{BC}{75}$ $40^2+75^2=AC^2$

$BC=40$ $85=AC$

In the figure at the right the ratio $\frac{Opposite\angle P}{Hypotenuse}=\frac{12}{37}$.



31) PR = 105, find PQ and QR.

$12^2+b^2=37^2$

$b=35$

So the ratio is

$12:35:37.$

$\frac{12}{35}=\frac{QR}{105}$

$QR=36$

$\frac{12}{37}=\frac{36}{PQ}$

$PQ=111$

32) PQ = 185, find PR and QR.

PR = 175

QR = 60

Find the angle measure in degrees for the given number of rotations.

33) 1/2 = ½(360°) **= 180°**

34) 3/4 = 3/4(360°) **= 270°**

35) 1 = 1(360°) **= 360°**

36) 2 = 2(360°) **= 720°**

37) 7/3 = 7/3(360°) **= 840°**

38) 11/6 = 11/6(360°) **= 660°**

Convert the given measure in degrees to radian measure.

39) 360° $360°\left(\frac{\pi}{180°}\right)=2\pi\ rad$

40) 180° $180°\left(\frac{\pi}{180°}\right)=\pi\ rad$

41) 90° $90°\left(\frac{\pi}{180°}\right)=\frac{\pi}{2}\ rad$

42) 60° $60°\left(\frac{\pi}{180°}\right)=\frac{\pi}{3}\ rad$

43) 150° $150°\left(\frac{\pi}{180°}\right)=\frac{5\pi}{6}\ rad$

44) 240^0 $240°\left(\frac{\pi}{180°}\right)=\frac{3\pi}{2}\ rad$

Convert the given measure in radians to degrees.

45) π rad $\pi\left(\frac{180°}{\pi}\right)=180°$

46) 2π rad $2\pi\left(\frac{180°}{\pi}\right)=360°$

47) $\frac{\pi}{2}\ rad$ $\frac{\pi}{2}\left(\frac{180°}{\pi}\right)=90°$

48) $\frac{2\pi}{3}\ rad$ $\frac{2\pi}{3}\left(\frac{180°}{\pi}\right)=120°$

49) $\frac{8\pi}{3}\ rad$ $\frac{8\pi}{3}\left(\frac{180°}{\pi}\right)=480°$

50) $\frac{5\pi}{6}\ rad$ $\frac{5\pi}{6}\left(\frac{180°}{\pi}\right)=150°$