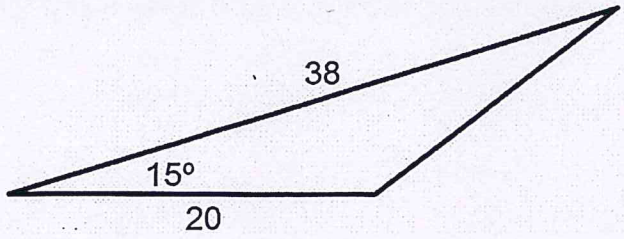
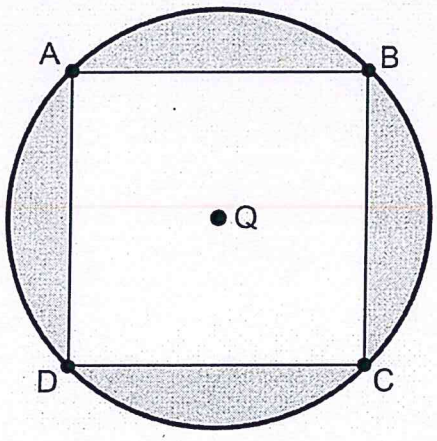
Bellwork Wednesday, March 20, 2019

1. Find the area of this triangle to the nearest hundredth.



2. The Standard Form for the equation of a circle is: $(x-h)^2+(y-k)^2=r^2$ where the center of the circle is (h,k) and the radius of the circle is r.
The center of a circle is $(3,-2)$ and the point $(-1,-2)$ is on the circle. Write the equation of this circle.

3. Find the area of the shaded region in the figure below. Square ABCD is inscribed in Circle Q. The perimeter of the square is 16 in. Round to the nearest tenth.



4. The function f is defined by $f(x)=2b^x$, where b is a constant. The graph of f in the xy-plane passes through the point $(1,1)$. What is the value of $f(-1)$?

A) -4 B) -1 C) 1 D) 4

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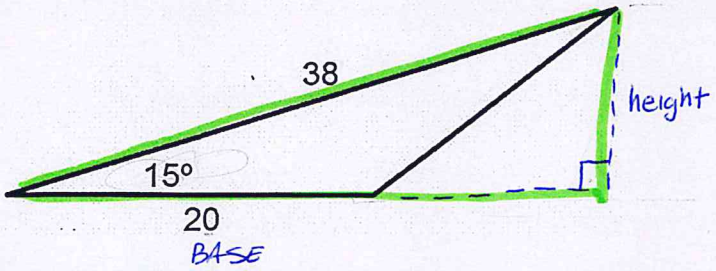
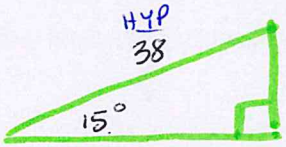
ANSWERS

1. Find the area of this triangle to the nearest hundredth.



SOHCAHTOA



$\sin 15° = \frac{x}{38}$

$x \approx 9.84$ = height

Area $= \frac{1}{2}bh = \frac{1}{2}(20)(9.84)$

Area = 98.35 using exact value of x

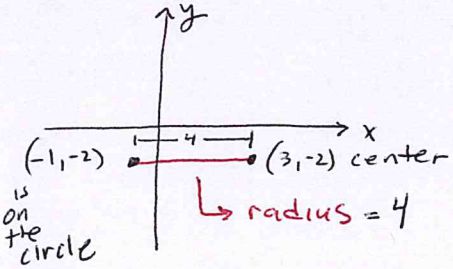
2. The Standard Form for the equation of a circle is: $(x-h)^2 + (y-k)^2 = r^2$ where the center of the circle is (h,k) and the radius of the circle is r.
The center of a circle is $(3,-2)$ and the point $(-1,-2)$ is on the circle. Write the equation of this circle.

h K

$(x-3)^2 + (y+2)^2 = r^2$

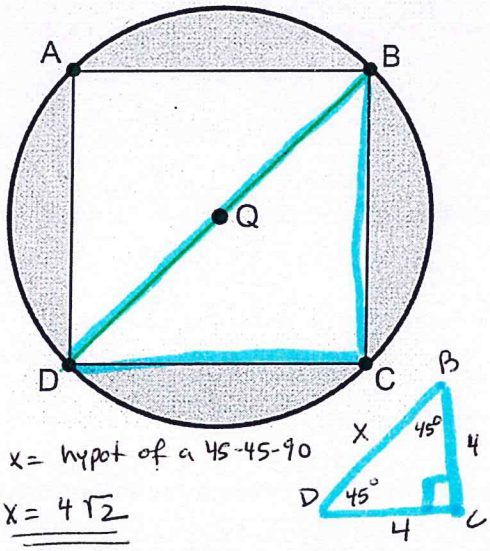
$(x-3)^2 + (y+2)^2 = 4^2$

$(x-3)^2 + (y+2)^2 = 16$



radius is the distance from the center to any point on the circle

3. Find the area of the shaded region in the figure below. Square ABCD is inscribed in Circle Q. The perimeter of the square is 16 in. Round to the nearest tenth.



x = hypot of a 45-45-90

$x = 4\sqrt{2}$

Area of shaded region:

= Area of circle − Area of square

$8\pi - 16 = 9.1 \text{ in}^2$

Area of Square:

perimeter: $P = 4s$

$16 = 4s$

side $= 4$

Area: $A = s^2$

$A = 4^2$

$A = 16$

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

$DB = 4\sqrt{2}$

$QB = 2\sqrt{2} = r$

$A = \pi(2\sqrt{2})^2$

$A = 8\pi$

r = QB which is half of DB.

DB is the diagonal of the square.

4. The function f is defined by $f(x) = 2b^x$, where b is a constant. The graph of f in the xy-plane passes through the point $(1,1)$. What is the value of $f(-1)$?

A) −4 B) −1 C) 1 D) 4

$f(x) = 2b^x \longrightarrow y = 2b^x$ using (1,1) replace x and y with 1 and solve for b

$1 = 2b^1$

$1 = 2b$

$b = 1/2 \longrightarrow f(x) = 2\left(\frac{1}{2}\right)^x$

$f(-1) = 2\left(\frac{1}{2}\right)^{-1}$

$= 2(2) = 4$