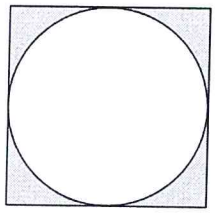
Bellwork Alg 2B Thursday, November 16, 2017

1. Solve for x. $\frac{1}{x} - \frac{1}{a} = \frac{1}{b}$

2. Find the equation of a line that is perpendicular to the line $y = 4x - 3$ and passes through $(-8, 1)$.

3. A circle is inscribed in the square below. If the area of the square is 36, find the area of the shaded region. Leave your answer in terms of π.



4. In the xy-plane, the graph of $y = -(x-1)^2 + 3$ and the circle with center (1,8) and radius of 5 have how many points of intersection?

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Answers

1. Solve for x. $\left(\frac{1}{x}-\frac{1}{a}=\frac{1}{b}\right)abx$

$ab - bx = ax$
$+bx \quad +bx$

$ab = ax + bx$

$\frac{ab}{a+b} = \frac{x(a+b)}{a+b}$

$x = \frac{ab}{a+b}$

2. Find the equation of a line that is perpendicular to the line $y = 4x - 3$ and passes through $(-8, 1)$.

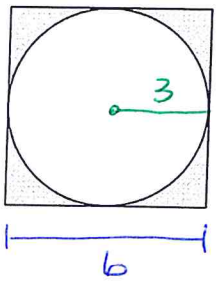
$\perp$ slope $= -\frac{1}{4}$

eq: point-slope form: $y - 1 = -\frac{1}{4}(x+8)$

slope-int form: $y - 1 = -\frac{1}{4}x - 2$
$+1 \quad +1$

$y = -\frac{1}{4}x - 1$

3. A circle is inscribed in the square below. If the area of the square is 36, find the area of the shaded region. Leave your answer in terms of π.



Area of the sq $= 36$

1 side of the sq $= \sqrt{36} = 6$

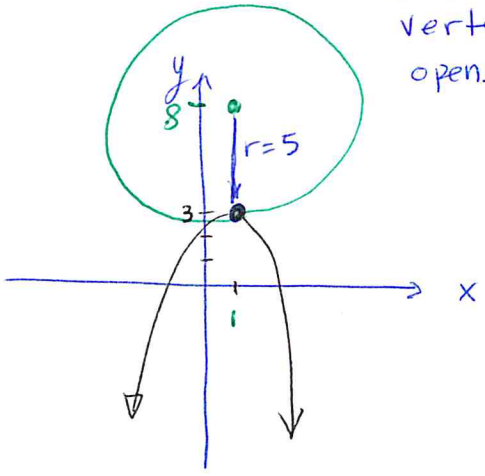
radius of the circle $= 3$

Area of the circle $= \pi(3)^2 = 9\pi$

Area of shaded region
$=$ square $-$ circle $=$ $36 - 9\pi$

4. In the xy-plane, the graph of $y = -(x-1)^2 + 3$ and the circle with center (1,8) and radius of 5 have how many points of intersection?

vertex $(1,3)$
opens down



1 point of intersection