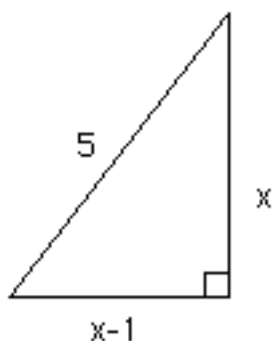


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Math 26 Section 1

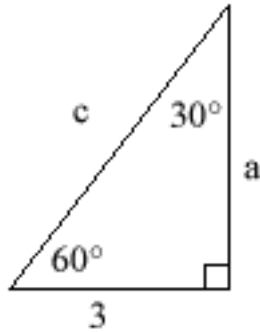
Quiz 1

1. (3 points) Solve for x in the following right triangle:



Using the Pythagorean theorem, $a^2 + b^2 = c^2$, $(x-1)^2 + x^2 = 5^2 \Leftrightarrow x^2 - 2x + 1 + x^2 - 25 = 0 \Leftrightarrow 2(x^2 - x - 12) = 0 \Leftrightarrow 2(x-4)(x+3) = 0 \Leftrightarrow x = 4$ or $x = -3$. Since x must be positive, we have $x = 4$.

2. (2 points) Find the remaining sides of the $30^\circ - 60^\circ - 90^\circ$ triangle if the shortest side has length 3.



Since the side opposite the 30° angle is 3, $a = 3\sqrt{3}$ and $c = 6$.

3. (2 points) What is the distance between the point $(3, 2)$ and the origin?

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = \sqrt{(3 - 0)^2 + (2 - 0)^2} = \sqrt{9 + 4} = \sqrt{13}$$

4. (3 points) Give an equation for the parabola with vertex $(1, 2)$ that goes through the point $(0, 4)$

The equation for a parabola is $y = a(x - h)^2 + k$ where $(h, k) = (1, 2)$. Thus $y = a(x - 1)^2 + 2$. Plugging in the point $(x, y) = (0, 4)$ yields $4 = a(0 - 1)^2 + 2$, so $a = 2$. i.e., $y = 2(x - 1)^2 + 2$.