

1. Find the roots of each quadratic function.

a. $5x^2 - 10x = 0$

b. $7x^2 + 8x + 1 = 0$

c. $3(x - 2)^2 - 27 = 0$

d. $5x^2 + 50 = 0$

2. Solve each of the following equations.

a. $2^x + 3 = 10$

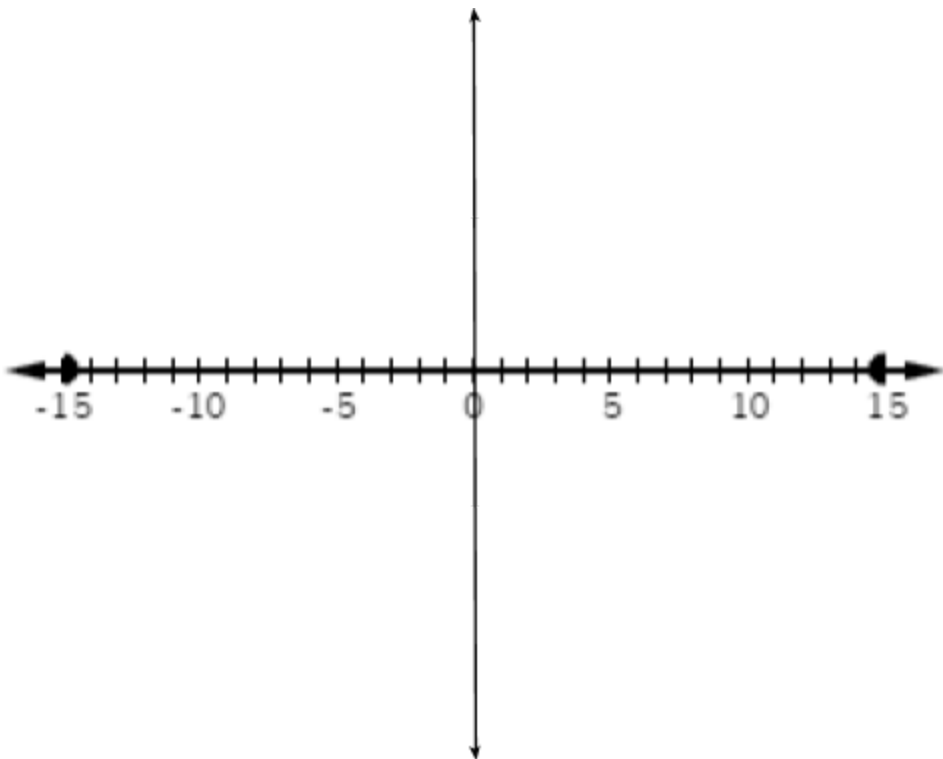
b. $\frac{x-4}{5} = \frac{3}{x+4}$

c. $\log(5x) + \log(2) = 3$

d. $5\log(x - 4) = 3$

3. Multiply using the area model. $(x - 4)(x + 3)(x - 1)^2$.

4. Check your answer to #3 using DESMOS. How can you be sure you have the correct answer? Sketch the polynomial below.



1. Deniz's computer is infected with a virus that will erase information from her hard drive. It will erase information quickly at first, but as time goes on, the rate at which information is erased will decrease. In t

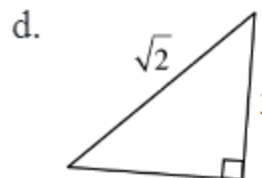
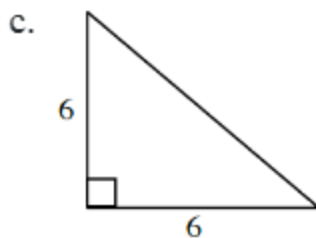
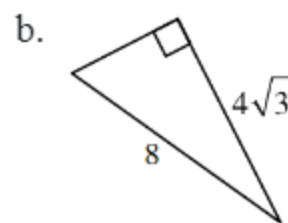
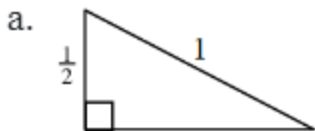
minutes after the virus starts erasing information, $5,000,000\left(\frac{1}{2}\right)^t$ bytes of information remain on the hard drive.

a. Before the virus starts erasing, how many bytes of information are on Deniz's hard drive?

b. After how many minutes will there be 1000 bytes of information left on the drive?

c. When will the hard drive be completely erased?

2. Calculate the length of the missing side in each triangle below. Write your answers in exact form.



3. Solve and graph each inequality.

a. $|7 - y| \leq 3$

b. $3|2m + 1| - 1 > 8$

4. Decide if each of the following functions is a polynomial function. If it is, state the degree. If it is not, explain how you know.

a. $f(x) = 3x^3 - 2x + 5$

b. $y = 0.25x^7 - 5x$

c. $y = 3^x - x^2$

d. $f(x) = x^2 - \sqrt{x} + 2$

e. $Q(x) = 3(x-4)^2(x+2)$

f. $y = x^2 - 3x + 5 - \frac{2}{x-2}$

5. Consider the function $f(x) = 10^{2x} - 5$

a. State the domain and range.

b. Write the equation of the inverse.

c. State the domain and range of the inverse function.