

September 28, 2017

Warm Up

On the same set of axes, draw the graphs of:

a. $y = 2^x$

b. $y = 2^x - 4$

For each, state the y -intercept and the equation of the horizontal asymptote

We can use the expansion laws to simplify expressions containing indices:

$$a(b + c) = ab + ac$$

$$(a + b)(c + d) = ac + ad + bc + bd$$

$$(a + b)(a - b) = a^2 - b^2$$

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$(a - b)^2 = a^2 - 2ab + b^2$$

Example:

Expand and Simplify:

$$x^{-\frac{1}{2}} \left(x^{\frac{3}{2}} + 2x^{\frac{1}{2}} - 3x^{-\frac{1}{2}} \right)$$

Similarly, we can simplify:

$$2^{n+3} + 8$$

$$4^x - 9$$

Exponential Equations are equations in which the unknown occurs as part of the index or exponent. For example:

$$3^x = 9$$

Solve for x:

a. $3^{x+2} = 1/27$

b. $9^{x-2} = 1/3$

$$4^x + 2^x - 20 = 0$$

Try some on your own:

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Problems: 1 a-d, 3, 5a-c