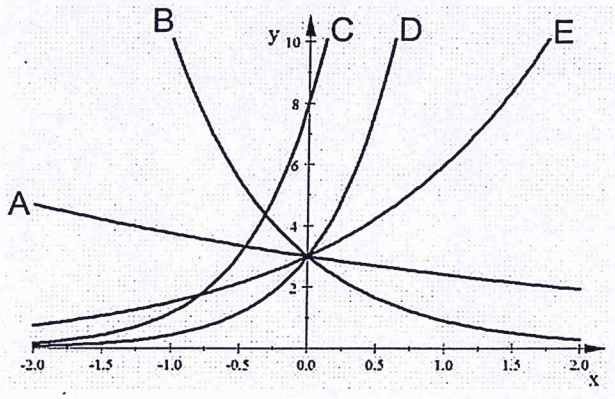
Bellwork Alg 2 Monday, February 24, 2020

1. Match each graph to its equation:

_____i. $y = 3(.8)^x$ _____ii. $y = 3(7)^x$ _____iii. $y = 8(7)^x$

_____iv. $y = 3(.3)^x$ _____v. $y = 3(2)^x$



2. The number of a certain kind of bird in an area that is being developed has been decreasing 6.1% every five years. The bird population in 2007 was 12,000. Write an exponential equation and find the bird population in the following years:

a. 1997 b. 2020

3. Rationalize the denominator. Give answer in simplified radical form.

$$\frac{12a^4b}{\sqrt[3]{16a^{11}b^4}}$$

4. Use these functions: $f(x) = x^2 - 3x$ $g(x) = x - 2$

a) Find $f(g(x))$. Simplify if possible. b) Find $g(f(5))$

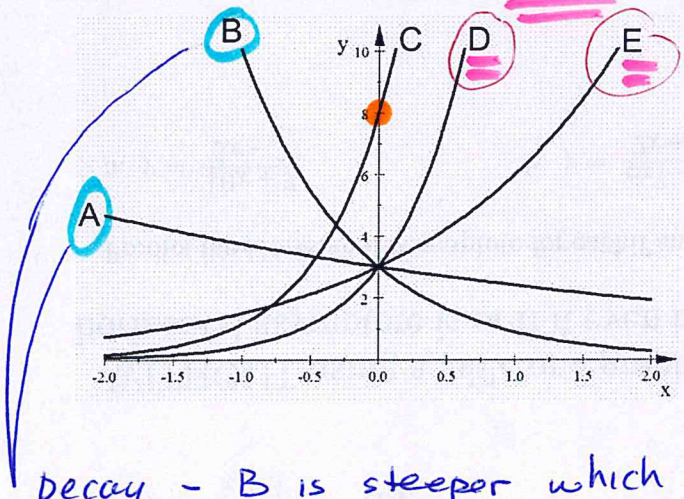
Bellwork Alg 2 Monday, February 24, 2020 ANSWERS

1. Match each graph to its equation:

A i. $y = 3(.8)^x$ D ii. $y = 3(7)^x$ C iii. $y = 8(7)^x$

The only y-int = 8

B iv. $y = 3(.3)^x$ E v. $y = 3(2)^x$



Growth - D is steeper which means the bigger base

Decay - B is steeper which means the smaller base

2. The number of a certain kind of bird in an area that is being developed has been decreasing 6.1% every five years. The bird population in 2007 was 12,000. Write an exponential equation and find the bird population in the following years:

base: $100 - 6.1 = 93.9\%$ $b = 0.939$

$y = 12{,}000(0.939)^x$ $x = \#$ 5yr periods since 2007

a. 1997

1997 - 2007 = -10 yrs

$x = \frac{-10}{5} = -2$

$y = 12{,}000(0.939)^{-2}$

$= 13{,}610$

b. 2020

2020 - 2007 = 13

$x = \frac{13}{5} = 2.6$

$y = 12{,}000(0.939)^{2.6}$

$= 10{,}189$

3. Rationalize the denominator. Give answer in simplified radical form.

$$\frac{12a^4b}{\sqrt[3]{16a^{11}b^4}} \cdot \frac{\sqrt[3]{2^2ab^2}}{\sqrt[3]{2^2ab^2}} = \frac{12a^4b\sqrt[3]{4ab^2}}{\sqrt[3]{2^6a^{12}b^6}} = \frac{12a^4b\sqrt[3]{4ab^2}}{2^2a^4b^2}$$

$16 = 2^4$

$$= \frac{3\sqrt[3]{4ab^2}}{b}$$

4. Use these functions: $f(x) = x^2 - 3x$ $g(x) = x - 2$

a) Find $f(g(x))$. Simplify if possible.

$f(g(x)) = (x-2)^2 - 3(x-2)$

$= x^2 - 4x + 4 - 3x + 6$

$f(g(x)) = x^2 - 7x + 10$

b) Find $g(f(5))$

$f(5) = (5)^2 - 3(5) = 25 - 15 = 1$

$g(f(5)) = g(10)$

$= 10 - 2$

$g(f(5)) = 8$