

SM2 HW #9-4 (Applications of the Exponential Function)

Period _____

1) Convert to exponential form:

$$(\sqrt{7b})^3$$

2) Convert to radical form:

$$(7a)^{\frac{4}{3}}$$

3) Solve by factoring:

$$6x^2 + 19x - 7 = 0$$

4) Perform the indicated operation;

$$h(x) = 3x + 3$$

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

$$\text{Find } (h \circ g)(3)$$

Simplify.

5) $(1 + 6i)(-1 + 2i)$

6) $\frac{-9 - 10i}{-10 + 7i}$

7) $-\sqrt{24} - \sqrt{54}$

8) $-3\sqrt{5} + 2\sqrt{45}$

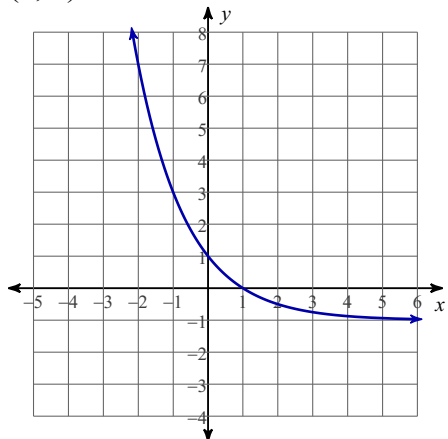
9) $2x^{\frac{1}{4}}y^{\frac{1}{3}} \cdot 3x^2y^{\frac{1}{3}}$

10) $\left(x^{\frac{4}{3}}\right)^{\frac{1}{2}}$

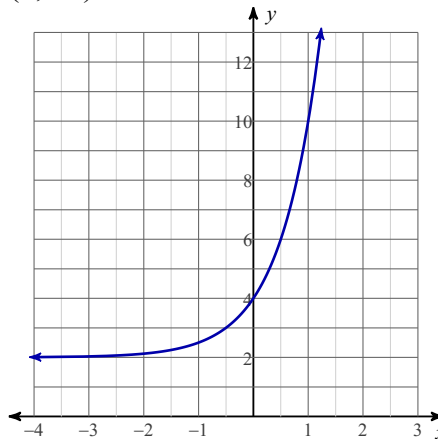
11) $\sqrt{3}(-2\sqrt{2} + 2)$

12) $\sqrt[3]{216x^4y}$

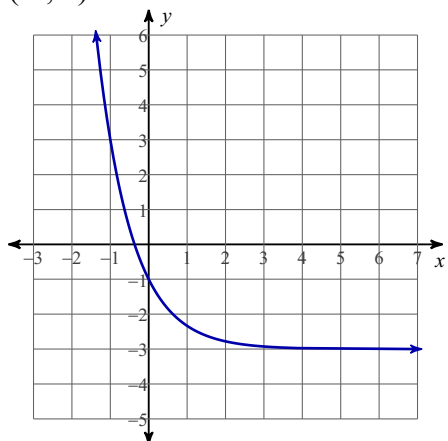
- 13) Write the equation for the graph. The graph passes through the ordered pairs (0, 1) and (1, 0)



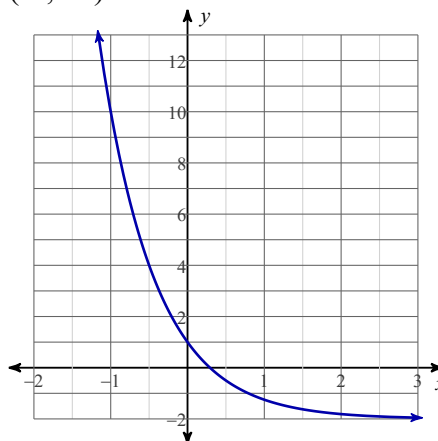
- 14) Write the equation for the graph. The graph passes through the ordered pairs (0, 4) and (1, 10)



- 15) Write the equation for the graph. The graph passes through the ordered pairs (0, -1) and (-1, 3)



- 16) Write the equation for the graph. The graph passes through the ordered pairs (0, 1) and (-1, 10)



- 17) Krypton-89 has a half-life of 3.16 minutes.

- How many half lives is 20 minutes?
- Derive the equation that models the decay of Krypton-89.
- If the original amount of Krypton-89 was 75 grams, how much would remain after 10 minutes?

- 18) Radium-228 has a half-life of 1600 years.

- How many half lives is 12,000 years?
- Derive the equation that models the decay of Radium-228.
- If the original amount of Radium-228 was 45 grams, how much would remain after 2500 years?