7.1-7.2 Homework   Name_____
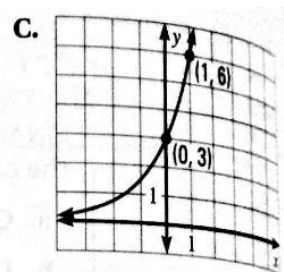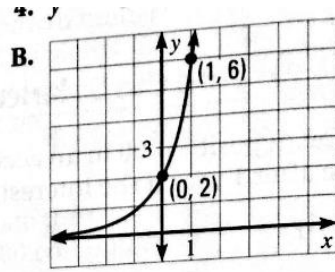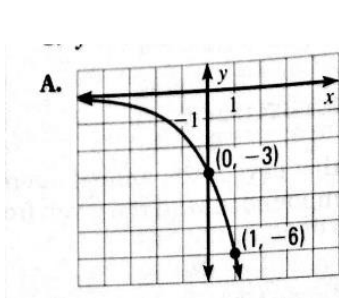
Match the function with its graph (1 – 3):

1. $y = 3 \cdot 2^x$ _____   2. $y = -3 \cdot 2^x$ _____   3. $y = 2 \cdot 3^x$ _____

A.

(0, −3)
(1, −6)

B.

(1, 6)
(0, 2)

C.
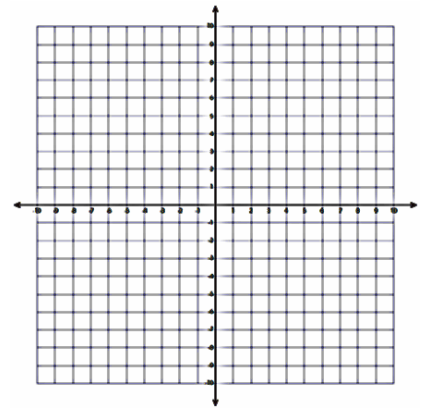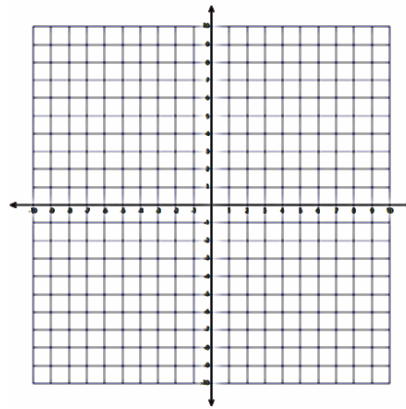
(1, 6)
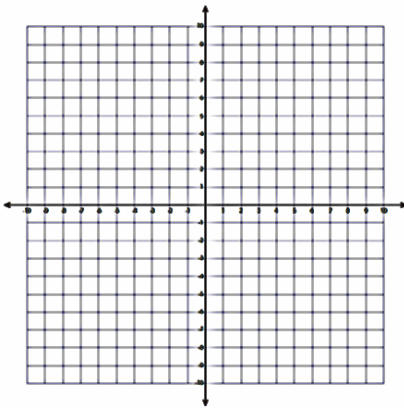(0, 3)

Graph the following functions and state the domain and range:

4. $y = 3^x$ 5. $y = 5 \cdot 2^x$ 6. $y = 5 \cdot 4^x + 2$
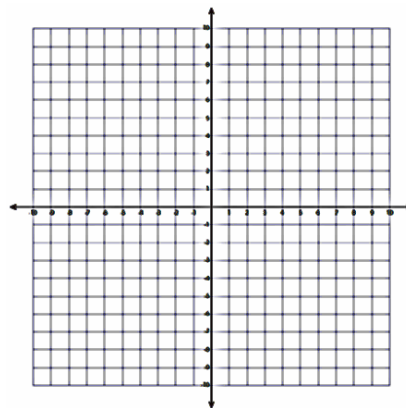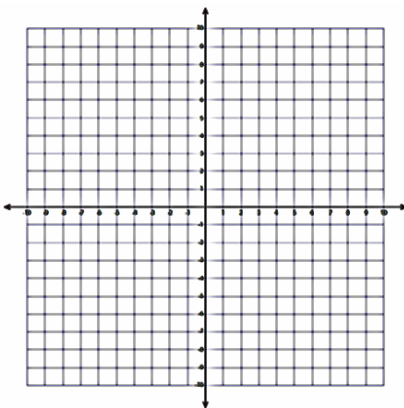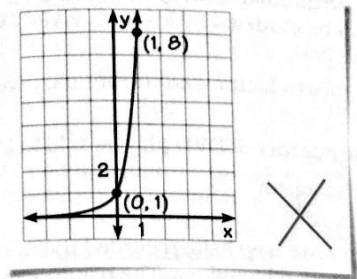
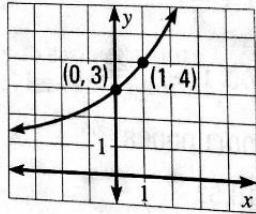7. $y = 3^{x-2} - 1$ 8. $y = -3 \cdot 4^{x-1} - 2$ 9.

ERROR ANALYSIS *Describe* and correct the error

26. $y = 2 \cdot 4^x$

2

(1, 8)

2

(0, 1)

10. **MULTIPLE CHOICE** The graph of which function is shown?

Ⓐ $f(x) = 2(1.5)^x - 1$

Ⓑ $f(x) = 2(1.5)^x + 1$

Ⓒ $f(x) = 3(1.5)^x - 1$

Ⓓ $f(x) = 3(1.5)^x + 1$

(0, 3) (1, 4)

11. You deposit $800 in an account that pays 2% annual interest compounded daily. Write an exponential growth model that describes the situation.

12. **BIKE COSTS** You buy a new mountain bike for $200. The value of the bike decreases by 25% each year.

a. Write a model giving the mountain bike's value y (in dollars) after t years. Use the model to estimate the value of the bike after 3 years.

b. Graph the model.

c. Estimate when the value of the bike will be $100.
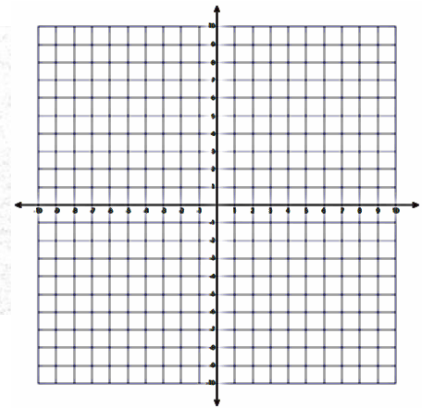
Tell whether the function represents exponential growth or exponential decay (13-16):

13. $f(x) = 3\left(\dfrac{3}{4}\right)^x$

14. $f(x) = 4\left(\dfrac{5}{2}\right)^x$
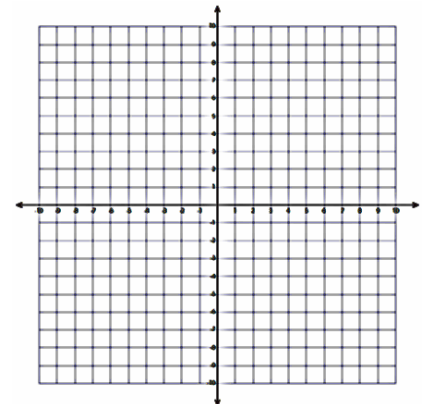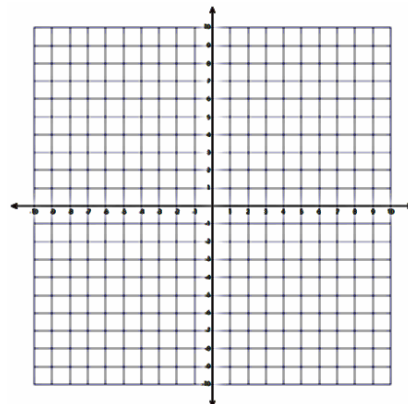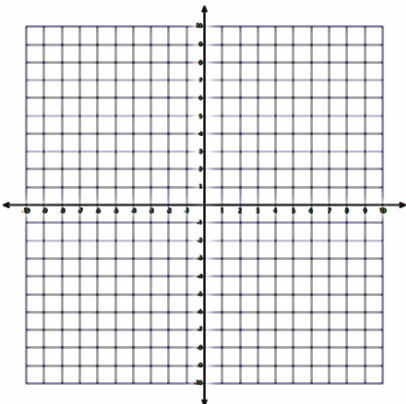
15. $f(x) = \dfrac{2}{7} \cdot 4^x$

16. $f(x) = 25(0.25)^x$

Graph the following functions and state the domain and range (17-19):

17. $y = \left(\dfrac{1}{3}\right)^x$

18. $y = -(0.2)^x$

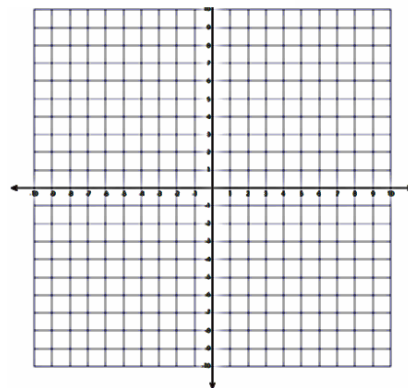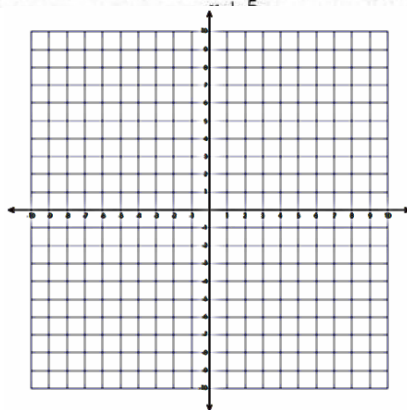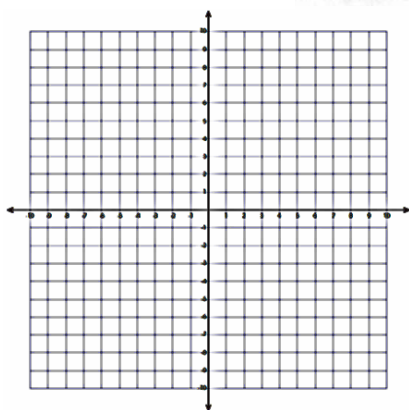19. $h(x) = -3\left(\dfrac{3}{8}\right)^x$

TRANSLATING GRAPHS Graph the function. State the domain and range.

20. $y = \left(\dfrac{1}{3}\right)^x + 1$

21. $y = 3(0.25)^x + 3$

22. $y = 2\left(\dfrac{1}{3}\right)^{x+1} - 3$

25. **GRAPHING CALCULATOR** Consider the exponential decay function $y = ab^{x-h} + k$ where $a = 3$, $b = 0.4$, $h = 2$, and $k = -1$. Predict the effect on the function's graph of each change in a, b, h, or k described in parts (a)–(d). Use a graphing calculator to check your prediction.

a. a changes to 4

b. b changes to 0.2

c. h changes to 5

d. k changes to 3