Name_____

8-1 Classwork

Date_____ Period_____

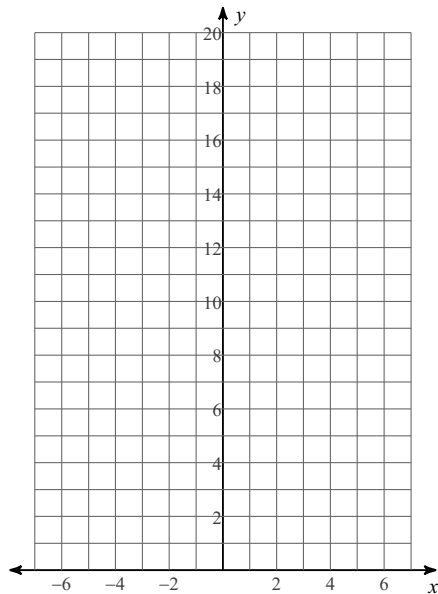**Sketch the graph of each function.**

1) $y = 3 \cdot 2^x$

2) $y = 2 \cdot 3^x$

3) $y = 5 \cdot 2^x$

4) $y = \dfrac{1}{3} \cdot 2^x$

- Made with Infinite Algebra 2.
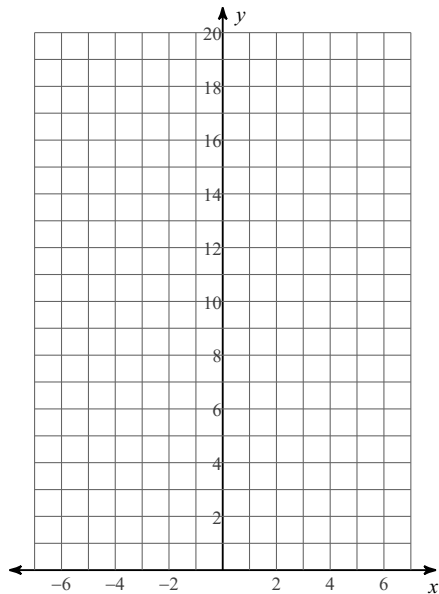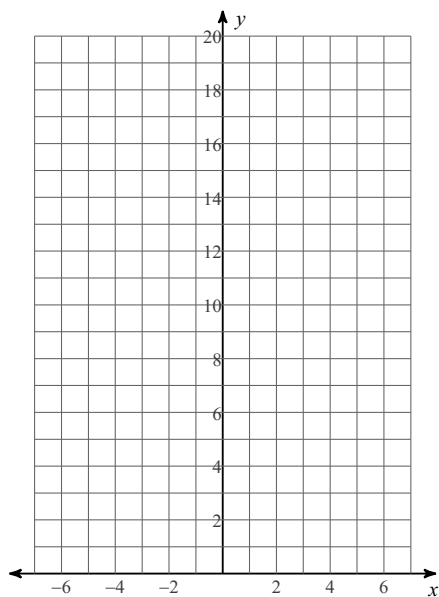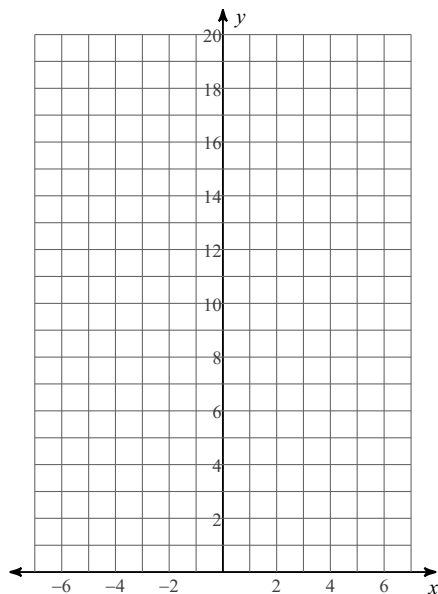
Identify each function or situation as an example of exponential growth or decay. State the y-intercept.

5) $y = 2 \cdot \left(\dfrac{1}{2}\right)^x$

6) $y = 3 \cdot 2^x$

7) $y = \dfrac{1}{4} \cdot \left(\dfrac{1}{6}\right)^x$

8) $y = 3 \cdot \left(\dfrac{1}{2}\right)^x$

Identify as an example of exponential growth or decay. What is the y-intercept?

9) You put $2000 into a college savings acocunt for four years. The account pays 6% interest annually.

10) You put $1500 into a college savings acocunt for ten years. The account pays 4% interest annually.

11) Suppose you invest $2000 in a savings account that pays interest at an annual rate of 4%. Supposing that no money is added to or withdrawn from the account,
a) how much will be in the account after 3 years?
b) how much will be in the account after 18 years?

12) Suppose you invest $2000 in a savings account that pays interest at an annual rate of 4%. Supposing that no money is added to or withdrawn from the account,
a) how many years will it take for the account to contain $2500?
b) how many years will it take for the account to contain $3000?

Write an exponential function to model each situation. Find each amount after the specified time.

13) A population of 120,000 grows 1.2% per year for 15 years.

14) A population of 1,860,000 decreases 1.5% each year for 12 years.

15) A classmate says that the growth factor of the exponential function $y = 15 \cdot 0.3^x$ is 0.3. What is the student's mistake?