

## 8.2 Graphing Exponential Functions

Period \_\_\_\_\_

**Decide whether the following graphs are exponential growth or decay problems.**

1)  $y = 4^x$

2)  $y = 3^x$

3)  $y = \left(\frac{1}{4}\right)^x$

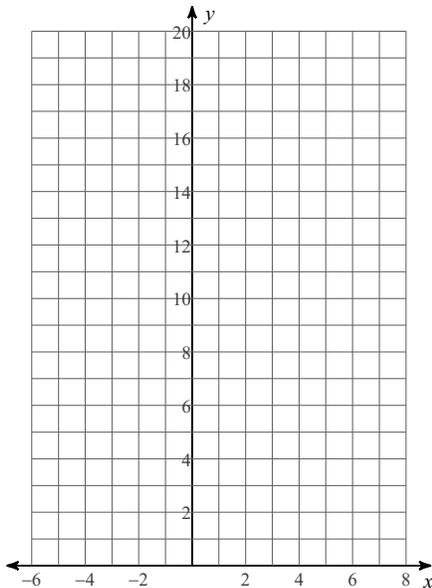
4)  $y = \left(\frac{1}{3}\right)^x$

5)  $y = 2^x$

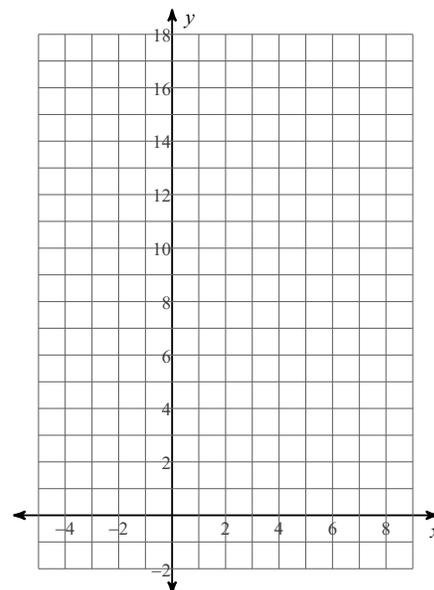
6)  $y = \left(\frac{1}{2}\right)^x$

**Plot three points of the following functions on a xy-coordinate plane.**

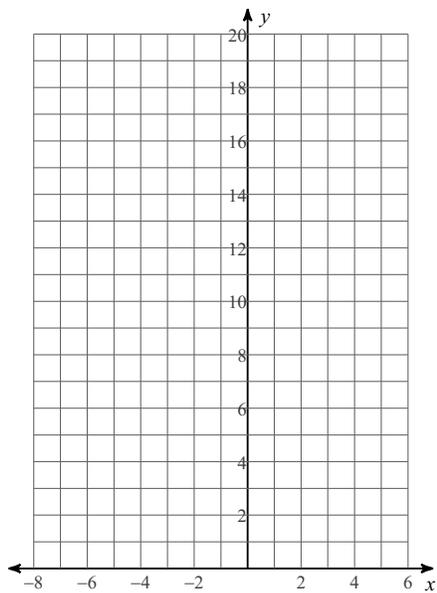
7)  $f(x) = 4^{x-1} + 2$



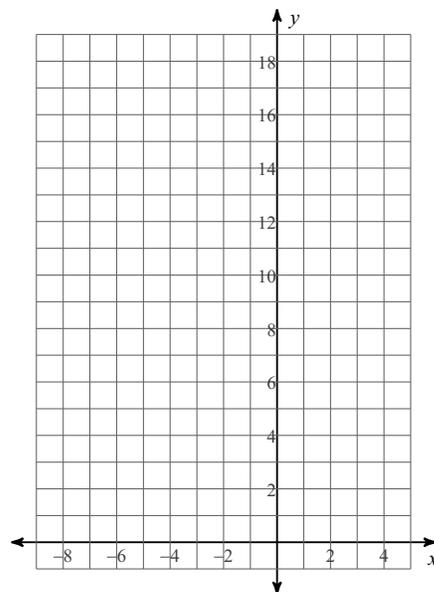
8)  $f(x) = \left(\frac{1}{2}\right)^{x-2} - 2$



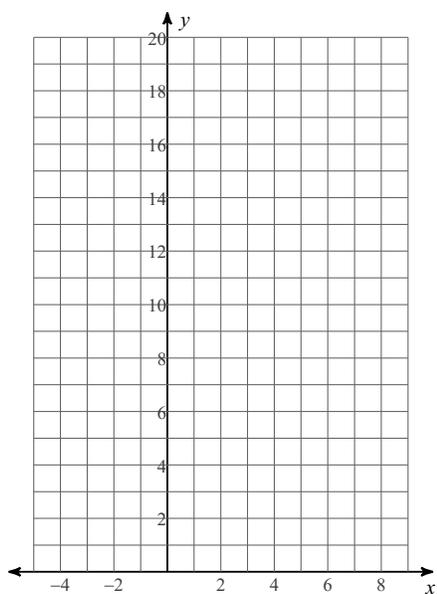
$$9) f(x) = \left(\frac{1}{3}\right)^{x+1} + 2$$



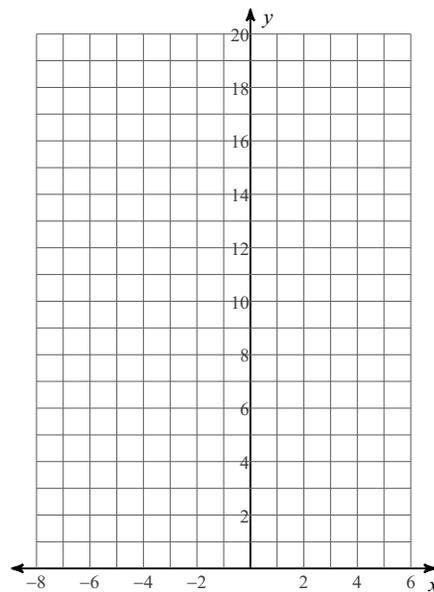
$$10) f(x) = 3^{x+2} - 1$$



$$11) f(x) = \left(\frac{1}{2}\right)^{x-2} + 1$$



$$12) f(x) = 4^{x+1} + 2$$



State the **HORIZONTAL ASYMPTOTE** of the following questions. Then find the **DOMAIN** and **RANGE** of the functions. (If you would like, graph the function to help you.)

13)  $f(x) = \left(\frac{1}{3}\right)^{x-2} - 2$

14)  $f(x) = 3^{x+2} - 1$

15)  $f(x) = \left(\frac{1}{2}\right)^{x+1} + 2$

16)  $f(x) = 4^{x+2} - 2$

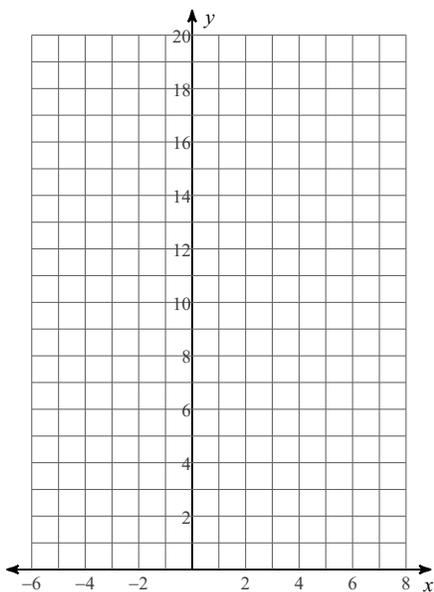
17)  $f(x) = 2^{x-2} + 1$

18)  $f(x) = \left(\frac{1}{4}\right)^{x+2} + 2$

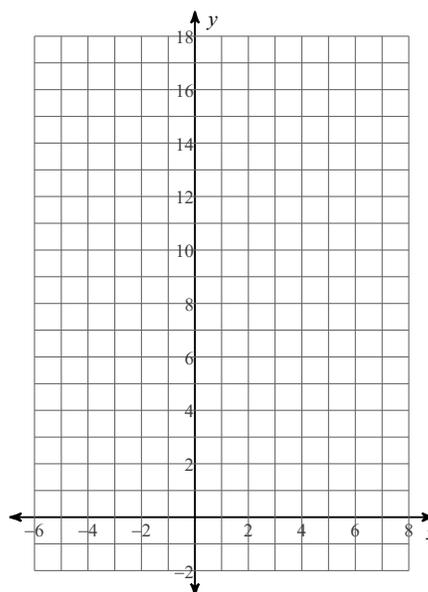
For each of the following problems:

1. State the **HORIZONTAL ASYMPTOTE** of the following questions and draw a dotted line.
2. Find the **DOMAIN** and **RANGE** of the functions.
3. State if they are **GROWTH** or **DECAY** functions.

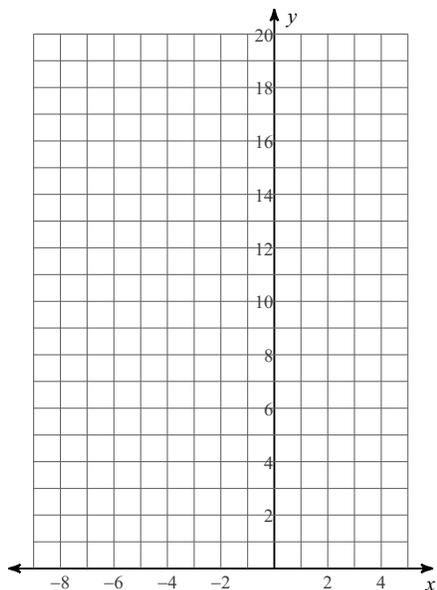
19)  $f(x) = 2^{x-1} + 1$



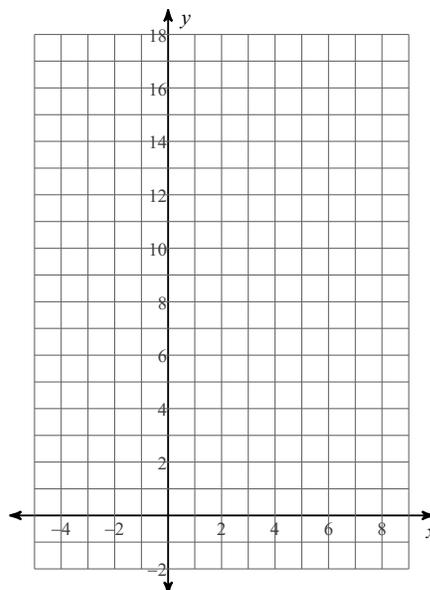
20)  $f(x) = \left(\frac{1}{4}\right)^{x-1} - 2$



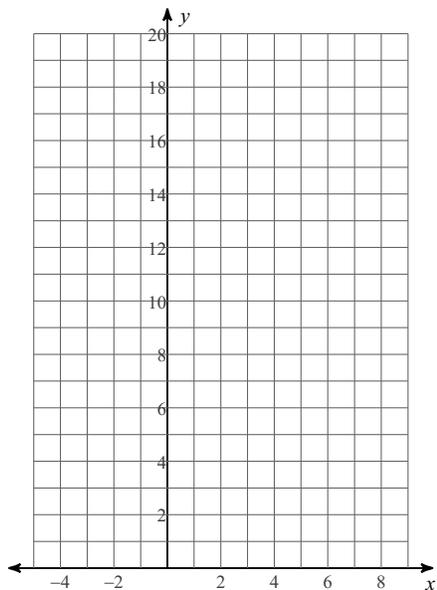
$$21) f(x) = \left(\frac{1}{3}\right)^{x+2} + 2$$



$$22) f(x) = 4^{x-2} - 2$$



$$23) f(x) = 2^{x-2} + 2$$



$$24) f(x) = 3^{x+2} + 2$$

