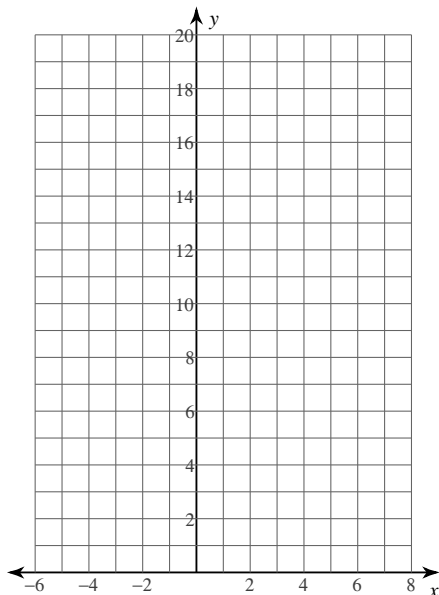


## Assignment

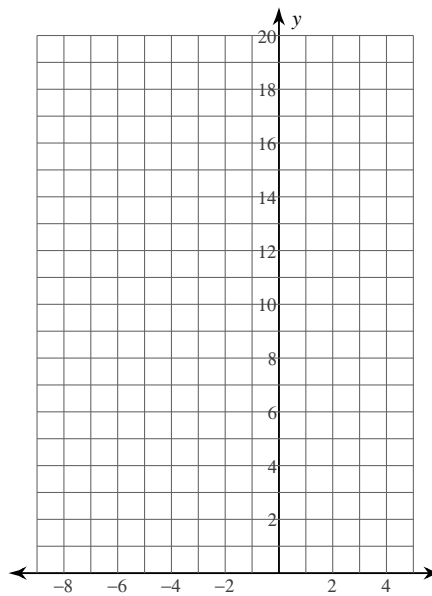
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## 14.1 I can graph exponential functions with and without technology

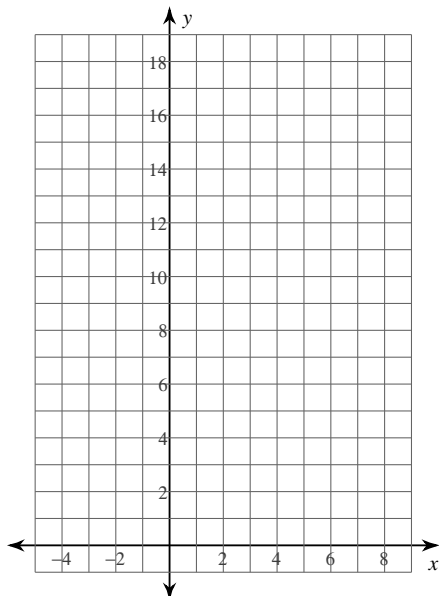
1)  $f(x) = 2 \cdot 3^{x-1} + 2$



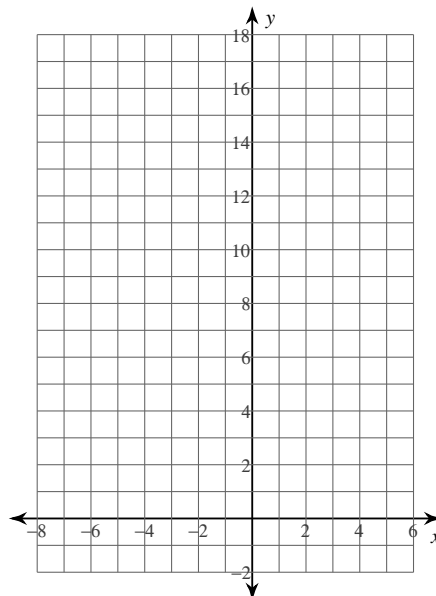
2)  $f(x) = 5 \cdot \left(\frac{1}{2}\right)^{x+2} + 1$



3)  $f(x) = 3 \cdot 2^{x-2} - 1$

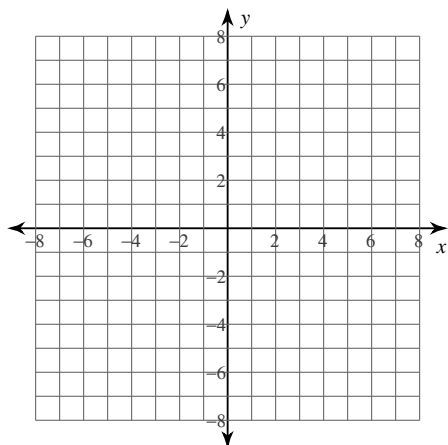


4)  $f(x) = 2 \cdot 3^{x+1} - 2$

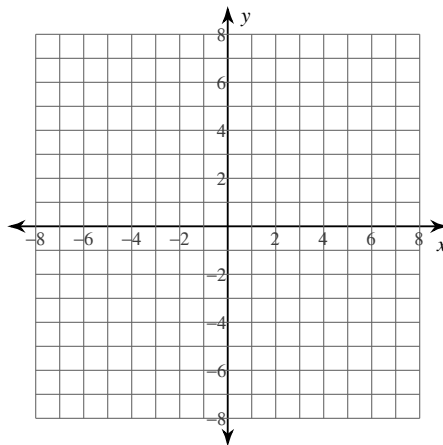


## 14.2 I can graph logarithmic functions with and without technology

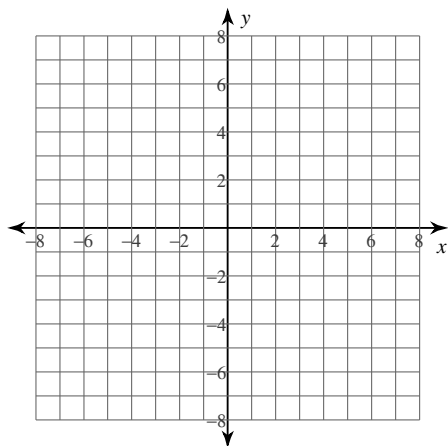
5)  $y = \log(x - 1) - 1$



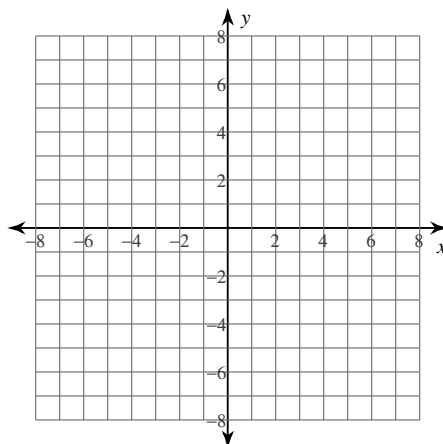
6)  $y = \log_5(x + 5) + 4$



7)  $y = \ln(x + 2) + 3$



8)  $y = \log_6(x + 3) + 2$



## 14.3 I can convert exponential equations to logarithmic form.

9)  $16^2 = 256$

10)  $12^0 = 1$

11)  $256^{\frac{1}{2}} = 16$

12)  $9^2 = 81$

13)  $14^2 = 196$

14)  $20^{-2} = \frac{1}{400}$

#### 14.4 I can convert logarithmic equations into exponential form.

$$15) \log_9 \frac{1}{81} = -2$$

$$16) \log_{17} 289 = 2$$

$$17) \log_{12} 144 = 2$$

$$18) \log_5 \frac{1}{25} = -2$$

$$19) \log_{20} 400 = 2$$

$$20) \log_{16} 256 = 2$$

#### 14.5 I can apply the properties of logarithms

$$21) \log_4 (xy^5)^4$$

$$22) \log_5 \frac{x^2}{y^6}$$

$$23) \log_5 (11\sqrt[3]{10 \cdot 3})$$

$$24) \log_3 \sqrt{12 \cdot 11 \cdot 5}$$

$$25) 4\log_8 x + 6\log_8 y$$

$$26) \frac{\log_9 a}{3} + \frac{\log_9 b}{3} + \frac{\log_9 c}{3}$$

$$27) 5\log_3 2 - 3\log_3 11$$

$$28) 2\log_2 12 + 6\log_2 11$$

#### 14.6 I can Solve Logarithmic Equations

$$29) \log_{12} (-2x + 4) = \log_{12} (3x - 1)$$

$$30) \log_3 3n = \log_3 (-5n - 8)$$

$$31) \log_{15} (3r - 2) = \log_{15} (2r + 8)$$

$$32) \log_{19} (-4b + 1) = \log_{19} (3b + 1)$$

$$33) \log_3 4x + \log_3 5 = 2$$

$$34) \log_5 4 + \log_5 4x^2 = 4$$

$$35) \log_5 10 + \log_5 (x - 8) = 3$$

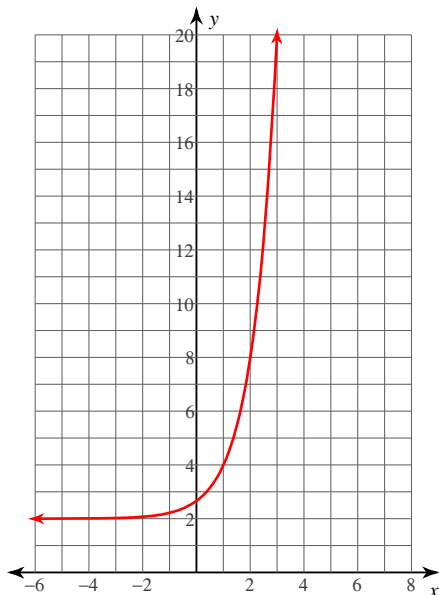
$$36) \log_8 3 - \log_8 (x + 1) = \log_8 72$$

## Assignment

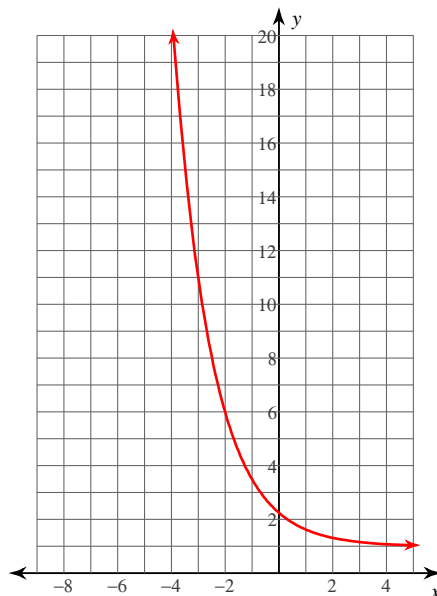
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## 14.1 I can graph exponential functions with and without technology

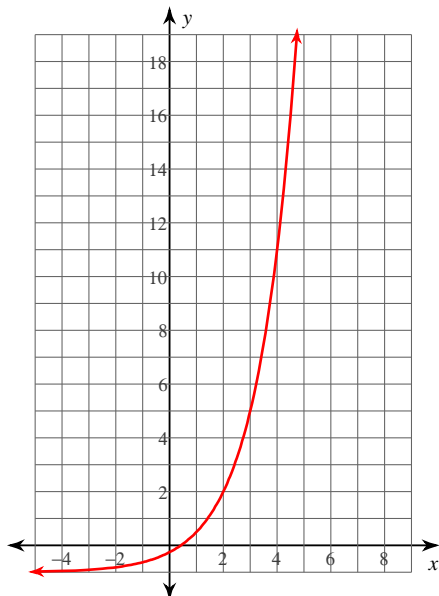
1)  $f(x) = 2 \cdot 3^{x-1} + 2$



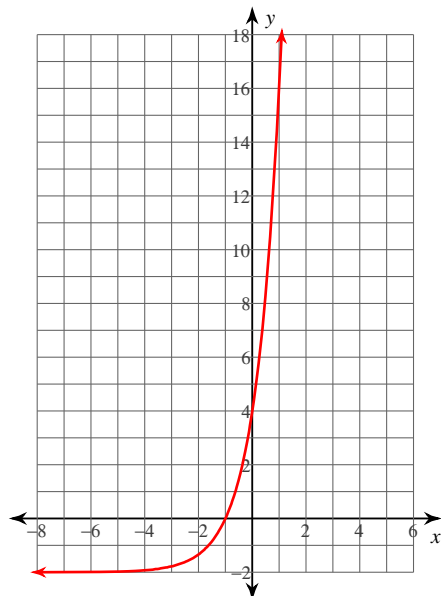
2)  $f(x) = 5 \cdot \left(\frac{1}{2}\right)^{x+2} + 1$



3)  $f(x) = 3 \cdot 2^{x-2} - 1$

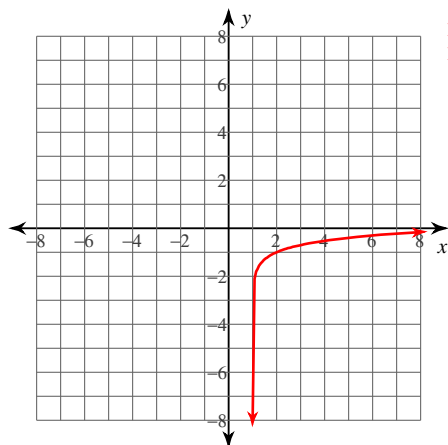


4)  $f(x) = 2 \cdot 3^{x+1} - 2$



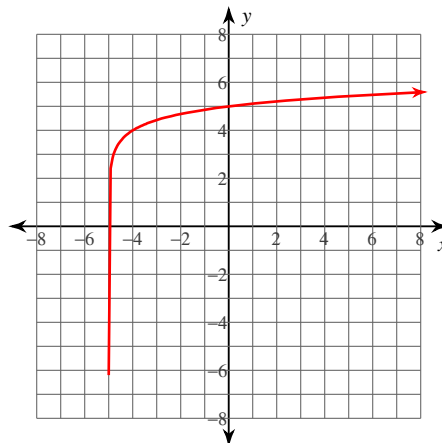
## 14.2 I can graph logarithmic functions with and without technology

5)  $y = \log(x - 1) - 1$



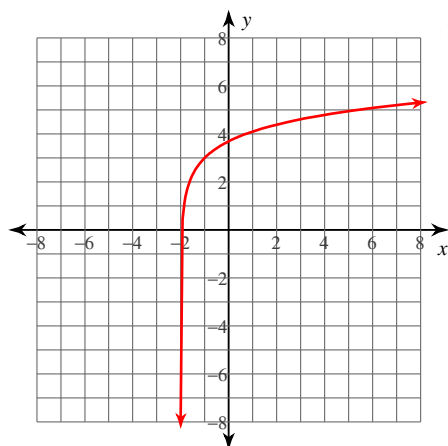
Domain:  $x > 1$   
Range: All reals

6)  $y = \log_5(x + 5) + 4$



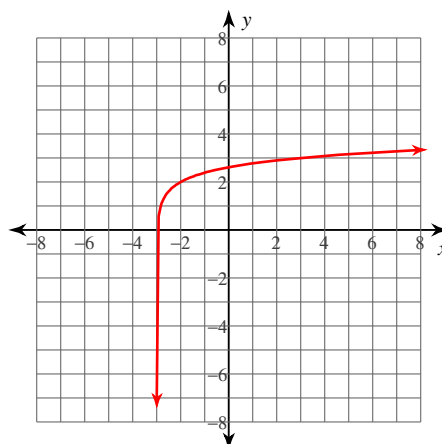
Domain:  $x > -5$   
Range: All reals

7)  $y = \ln(x + 2) + 3$



Domain:  $x > -2$   
Range: All reals

8)  $y = \log_6(x + 3) + 2$



Domain:  $x > -3$   
Range: All reals

## 14.3 I can convert exponential equations to logarithmic form.

9)  $16^2 = 256$

$\log_{16} 256 = 2$

11)  $256^{\frac{1}{2}} = 16$

$\log_{256} 16 = \frac{1}{2}$

13)  $14^2 = 196$

$\log_{14} 196 = 2$

10)  $12^0 = 1$

$\log_{12} 1 = 0$

12)  $9^2 = 81$

$\log_9 81 = 2$

14)  $20^{-2} = \frac{1}{400}$   $\log_{20} \frac{1}{400} = -2$

#### 14.4 I can convert logarithmic equations into exponential form.

$$15) \log_9 \frac{1}{81} = -2 \quad 9^{-2} = \frac{1}{81}$$

$$16) \log_{17} 289 = 2 \\ 17^2 = 289$$

$$17) \log_{12} 144 = 2 \\ 12^2 = 144$$

$$18) \log_5 \frac{1}{25} = -2 \quad 5^{-2} = \frac{1}{25}$$

$$19) \log_{20} 400 = 2 \\ 20^2 = 400$$

$$20) \log_{16} 256 = 2 \\ 16^2 = 256$$

#### 14.5 I can apply the properties of logarithms

$$21) \log_4 (xy^5)^4 \\ 4\log_4 x + 20\log_4 y$$

$$22) \log_5 \frac{x^2}{y^6} \\ 2\log_5 x - 6\log_5 y$$

$$23) \log_5 (11\sqrt[3]{10 \cdot 3}) \\ \log_5 11 + \frac{\log_5 10}{3} + \frac{\log_5 3}{3}$$

$$24) \log_3 \sqrt{12 \cdot 11 \cdot 5} \\ \frac{\log_3 12}{2} + \frac{\log_3 11}{2} + \frac{\log_3 5}{2}$$

$$25) 4\log_8 x + 6\log_8 y \\ \log_8 (y^6 x^4)$$

$$26) \frac{\log_9 a}{3} + \frac{\log_9 b}{3} + \frac{\log_9 c}{3} \\ \log_9 \sqrt[3]{cba}$$

$$27) 5\log_3 2 - 3\log_3 11 \\ \log_3 \frac{2^5}{11^3}$$

$$28) 2\log_2 12 + 6\log_2 11 \\ \log_2 (11^6 \cdot 12^2)$$

#### 14.6 I can Solve Logarithmic Equations

$$29) \log_{12} (-2x + 4) = \log_{12} (3x - 1) \\ \{1\}$$

$$30) \log_3 3n = \log_3 (-5n - 8) \\ \text{No solution.}$$

$$31) \log_{15} (3r - 2) = \log_{15} (2r + 8) \\ \{10\}$$

$$32) \log_{19} (-4b + 1) = \log_{19} (3b + 1) \\ \{0\}$$

$$33) \log_3 4x + \log_3 5 = 2 \quad \left\{ \frac{9}{20} \right\}$$

$$34) \log_5 4 + \log_5 4x^2 = 4 \quad \left\{ \frac{25}{4}, -\frac{25}{4} \right\}$$

$$35) \log_5 10 + \log_5 (x - 8) = 3 \quad \left\{ \frac{41}{2} \right\}$$

$$36) \log_8 3 - \log_8 (x + 1) = \log_8 72 \quad \left\{ -\frac{23}{24} \right\}$$