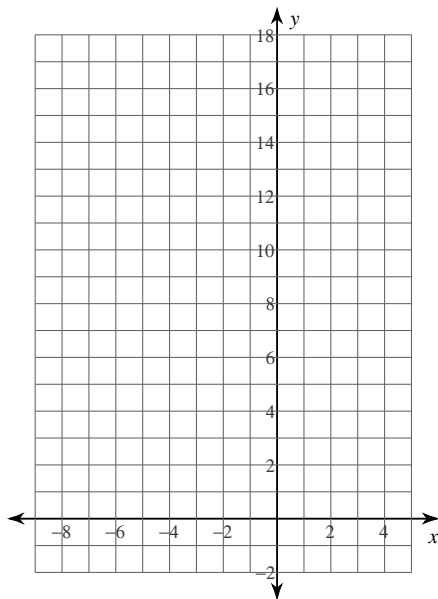


Assignment

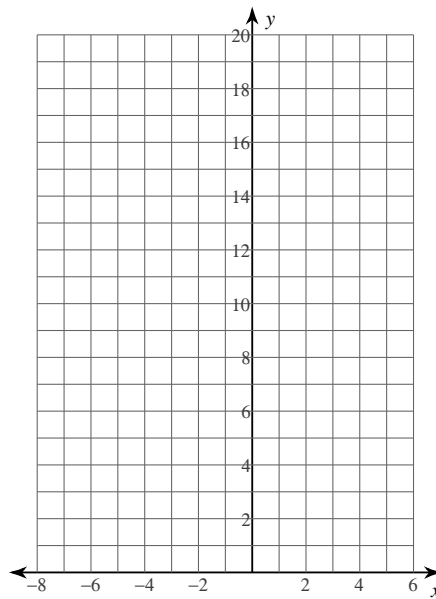
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14.1 I can graph exponential functions with and without technology

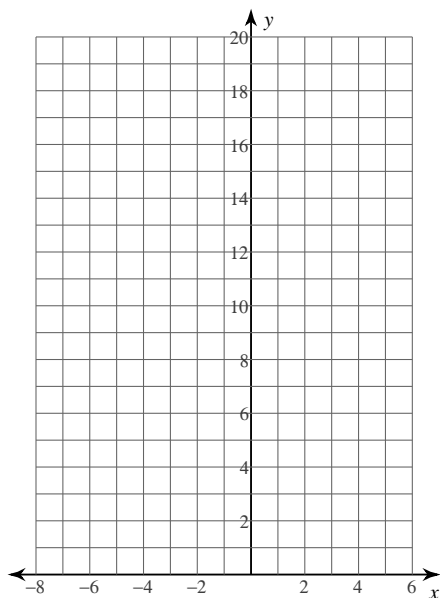
1) $f(x) = 2 \cdot 2^{x+2} - 2$



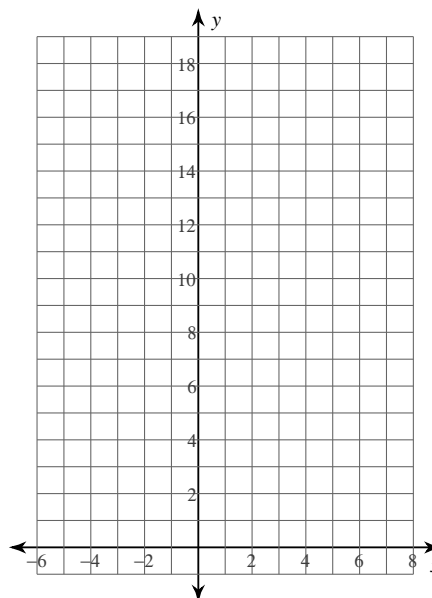
2) $f(x) = 4 \cdot 2^{x+1} + 1$



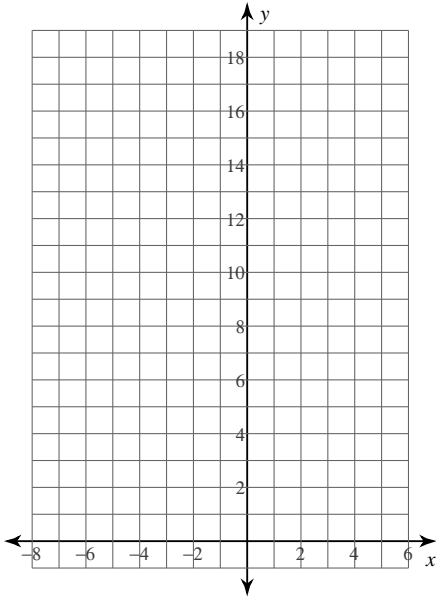
3) $f(x) = 2 \cdot \left(\frac{1}{3}\right)^{x+1} + 1$



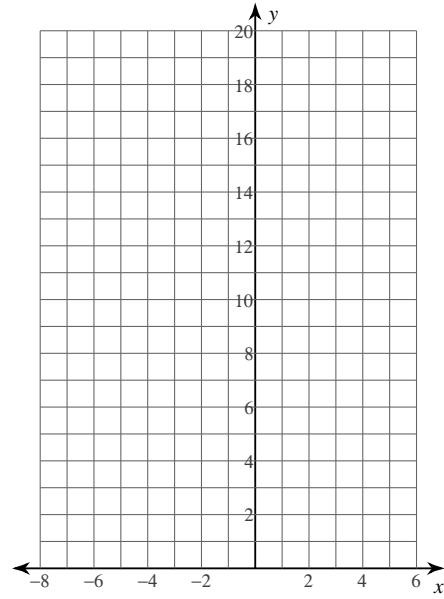
4) $f(x) = 5 \cdot \left(\frac{1}{2}\right)^{x-1} - 1$



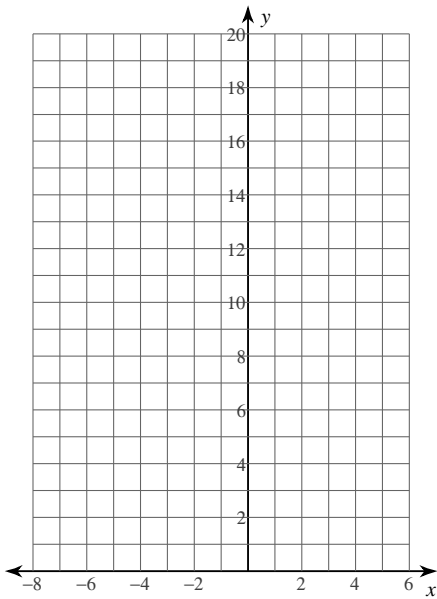
$$5) f(x) = 4 \cdot 2^{x+1} - 1$$



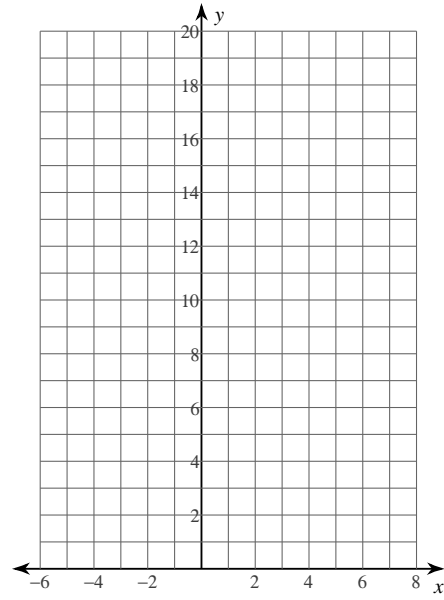
$$6) f(x) = 5 \cdot 2^{x+1} + 2$$



$$7) f(x) = 5 \cdot \left(\frac{1}{2}\right)^{x+1} + 1$$

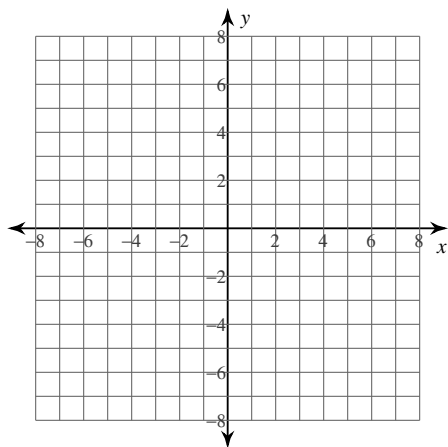


$$8) f(x) = 3 \cdot 2^{x-1} + 2$$

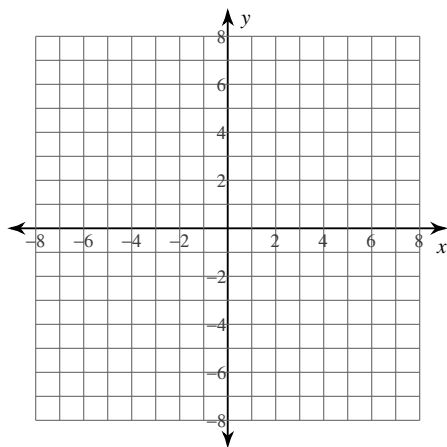


14.2 I can graph logarithmic functions with and without technology

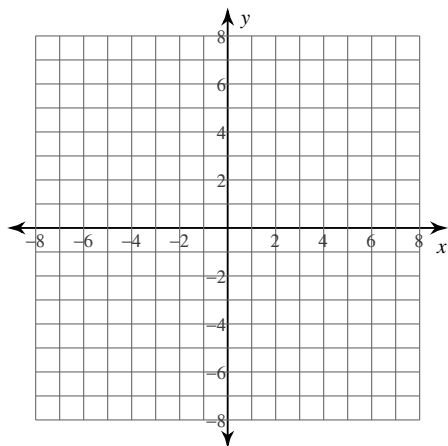
9) $y = \log_3(x - 1) - 1$



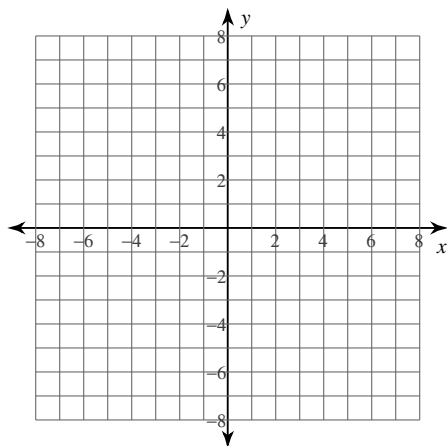
10) $y = \log_2(x - 1) - 5$



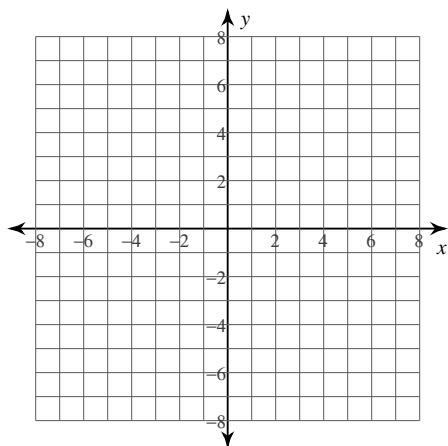
11) $y = \log_3(x - 1) - 2$



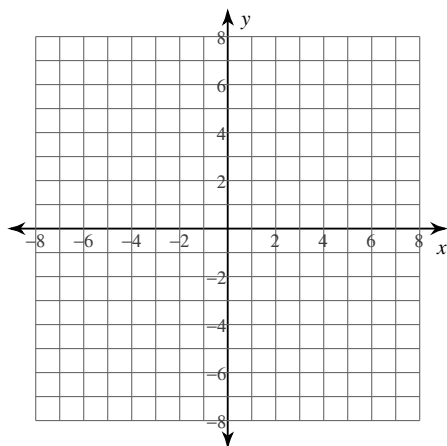
12) $y = \log_6(x - 3) + 4$



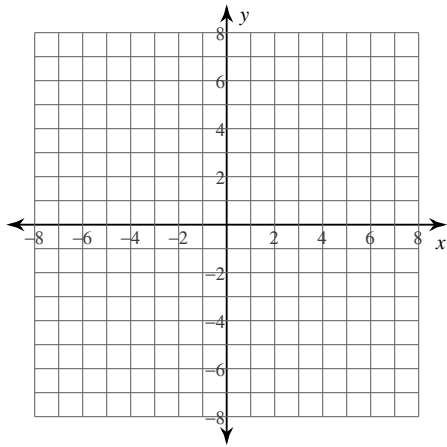
13) $y = \log_3(x - 1) - 3$



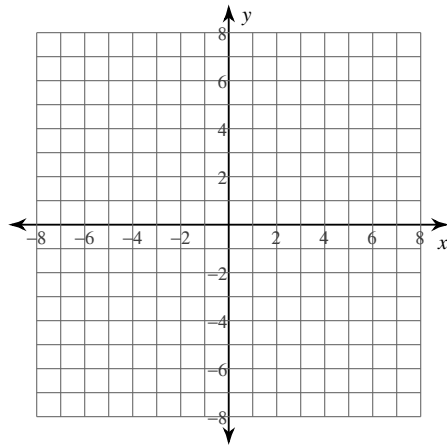
14) $y = \log_2(x - 1) - 2$



$$15) y = \log_2(x + 2) + 5$$



$$16) y = \log_3(x + 6) - 3$$



14.3 I can convert exponential equations to logarithmic form.

$$17) 9^1 = 9$$

$$18) 64^{-\frac{1}{2}} = \frac{1}{8}$$

$$19) 12^2 = 144$$

$$20) 7^{-2} = \frac{1}{49}$$

$$21) 5^{-4} = \frac{1}{625}$$

$$22) 16^2 = 256$$

$$23) 5^{-3} = \frac{1}{125}$$

$$24) 9^{-2} = \frac{1}{81}$$

$$25) 8^{-2} = \frac{1}{64}$$

$$26) 16^{-\frac{1}{2}} = \frac{1}{4}$$

$$27) 8^2 = 64$$

$$28) 12^0 = 1$$

14.4 I can convert logarithmic equations into exponential form.

$$29) \log_{16} 256 = 2$$

$$30) \log_{81} \frac{1}{9} = -\frac{1}{2}$$

$$31) \log_2 16 = 4$$

$$32) \log_{\frac{1}{17}} \frac{1}{289} = 2$$

$$33) \log_5 125 = 3$$

$$34) \log_{125} 5 = \frac{1}{3}$$

$$35) \log_5 25 = 2$$

$$36) \log_{17} 289 = 2$$

$$37) \log_2 \frac{1}{8} = -3$$

$$38) \log_9 81 = 2$$

$$39) \log_{289} \frac{1}{17} = -\frac{1}{2}$$

$$40) \log_{13} 169 = 2$$

14.5 I can apply the properties of logarithms

$$41) \log_3 (11 \cdot 7^4)^2$$

$$42) \log_8 (uv^3)^3$$

$$43) \log_6 \frac{11^6}{12^4}$$

$$44) \log_5 (uv^6)^6$$

$$45) \log_7 \sqrt[3]{11 \cdot 10 \cdot 3}$$

$$46) \log_4 (10^2 \cdot 3^3)$$

$$47) \log_5 \sqrt[3]{x \cdot y \cdot z}$$

$$48) \log_8 \frac{x^6}{y^5}$$

$$49) 5 \log_2 a + 5 \log_2 b$$

$$50) 18 \log u - 6 \log v$$

51) $\frac{\log_9 10}{2} + \frac{\log_9 11}{2} + \frac{\log_9 7}{2}$

52) $\log_7 x + \log_7 y + 2\log_7 z$

53) $20\log_7 u - 4\log_7 v$

54) $2\log_8 a + 6\log_8 b$

55) $3\log_6 10 + 5\log_6 3$

56) $\frac{\log_3 11}{3} + \frac{\log_3 7}{3} + \frac{\log_3 5}{3}$

14.6 I can Solve Logarithmic Equations

57) $\log_{15} -3k = \log_{15} (-5k - 4)$

58) $\log_{13} (2 - 4p) = \log_{13} -5p$

59) $\log_{12} -2x = \log_{12} (9 - x)$

60) $\log_{19} -4n = \log_{19} (3n - 7)$

61) $\log_{14} (2v + 2) = \log_{14} (3v - 10)$

62) $\log_9 -4x = \log_9 -2x$

63) $\ln -3a = \ln (-2a + 10)$

64) $\log (-3x - 1) = \log (4x + 6)$

65) $\log_8 4 + \log_8 4x^2 = 4$

66) $\log_5 (x^2 - 8) - \log_5 4 = \log_5 2$

67) $\log_5 3 - \log_5 (x - 5) = \log_5 35$

68) $\log_2 5 - \log_2 (x + 1) = 5$

69) $\log_7 4 - \log_7 (x - 2) = \log_7 28$

70) $\log_4 3 - \log_4 2x = 2$

71) $\log_2 (x^2 + 8) - \log_2 6 = 1$

72) $\log -4x + \log 9 = 2$

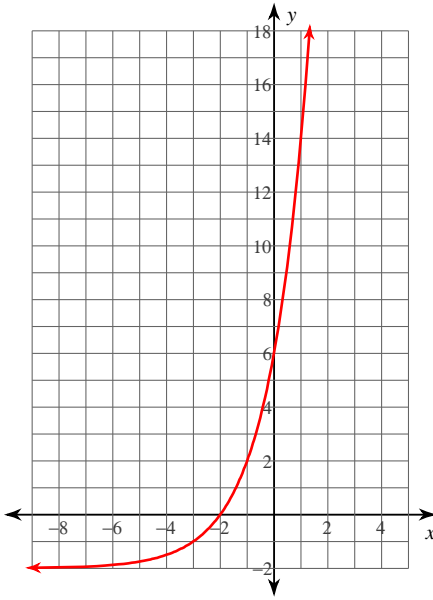
Assignment

Date _____ Period _____

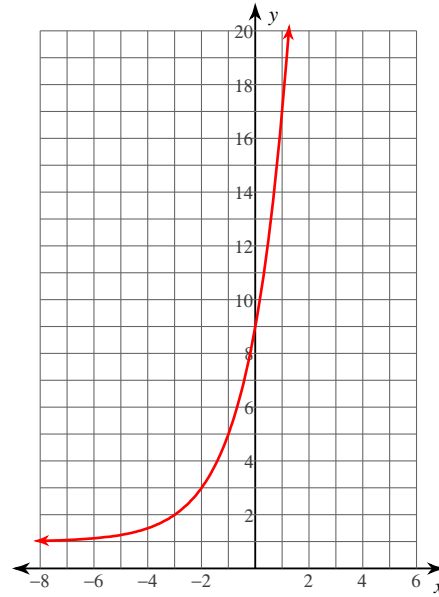
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14.1 I can graph exponential functions with and without technology

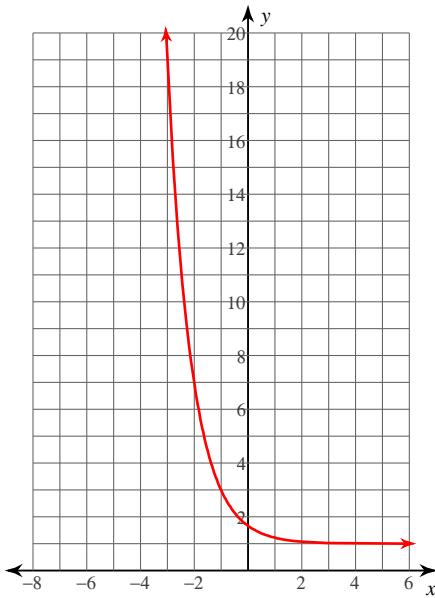
1) $f(x) = 2 \cdot 2^{x+2} - 2$



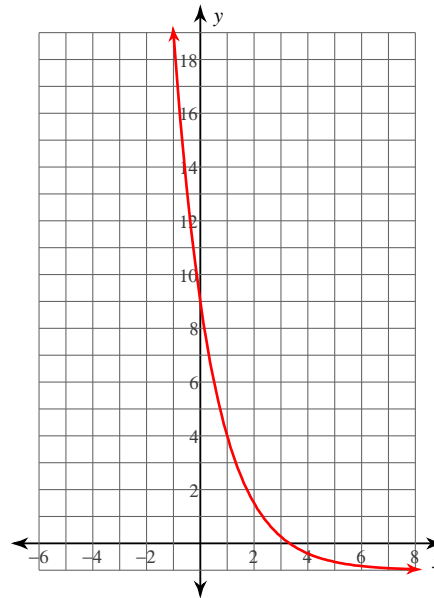
2) $f(x) = 4 \cdot 2^{x+1} + 1$



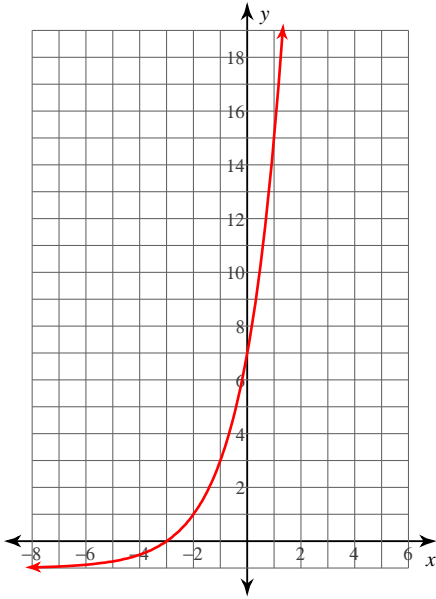
3) $f(x) = 2 \cdot \left(\frac{1}{3}\right)^{x+1} + 1$



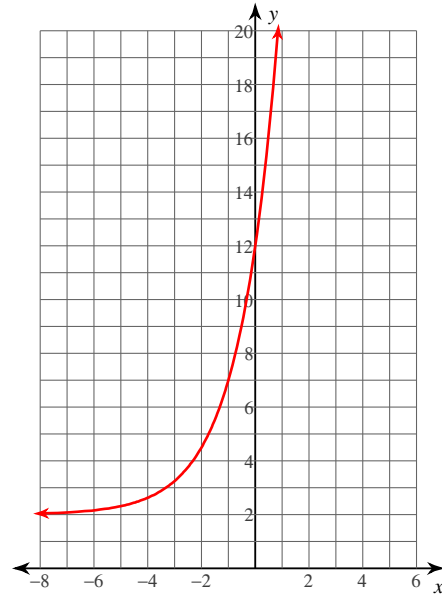
4) $f(x) = 5 \cdot \left(\frac{1}{2}\right)^{x-1} - 1$



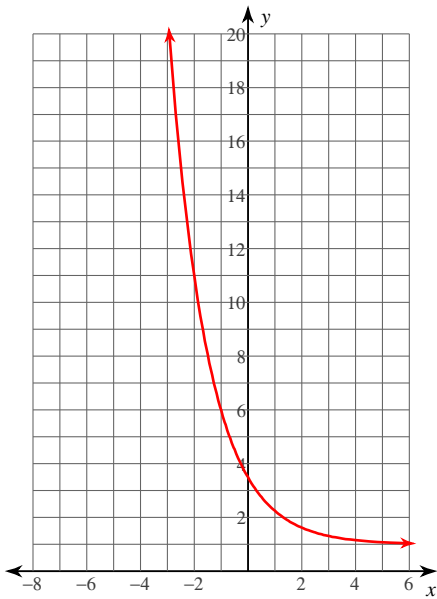
5) $f(x) = 4 \cdot 2^{x+1} - 1$



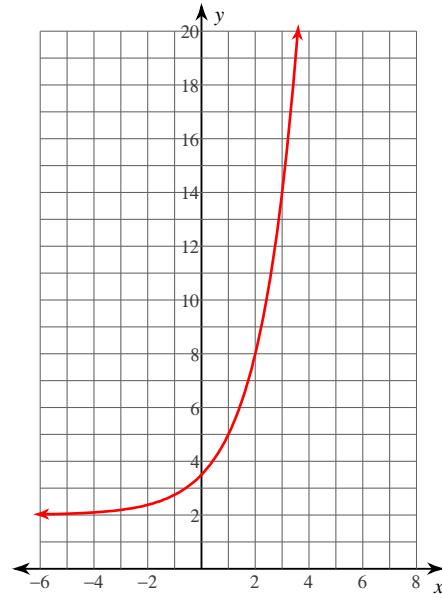
6) $f(x) = 5 \cdot 2^{x+1} + 2$



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

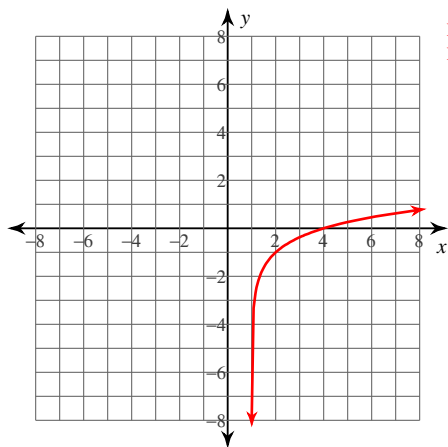


8) $f(x) = 3 \cdot 2^{x-1} + 2$



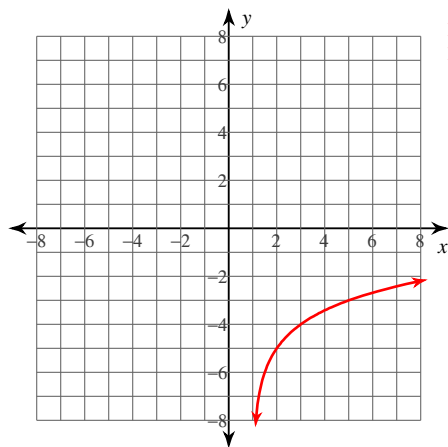
14.2 I can graph logarithmic functions with and without technology

9) $y = \log_3(x - 1) - 1$



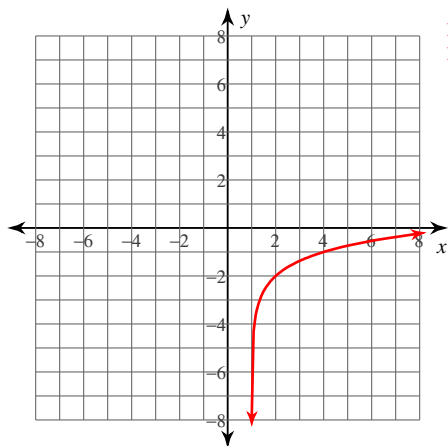
Domain: $x > 1$
Range: All reals

10) $y = \log_2(x - 1) - 5$



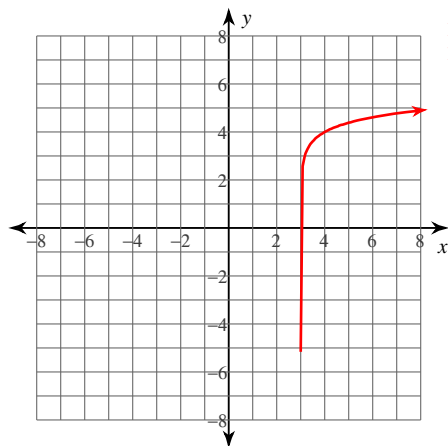
Domain: $x > 1$
Range: All reals

11) $y = \log_3(x - 1) - 2$



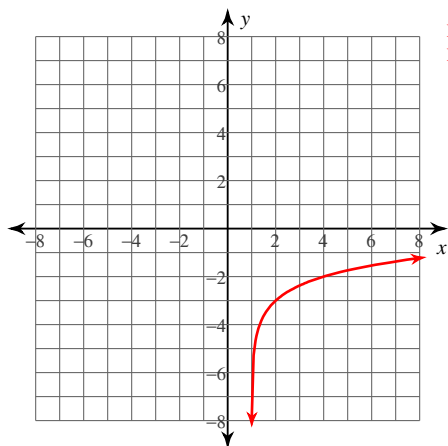
Domain: $x > 1$
Range: All reals

12) $y = \log_6(x - 3) + 4$



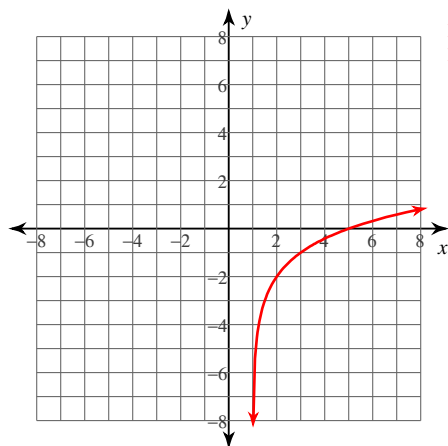
Domain: $x > 3$
Range: All reals

13) $y = \log_3(x - 1) - 3$



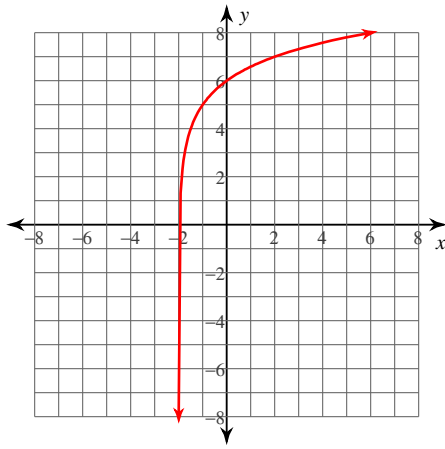
Domain: $x > 1$
Range: All reals

14) $y = \log_2(x - 1) - 2$



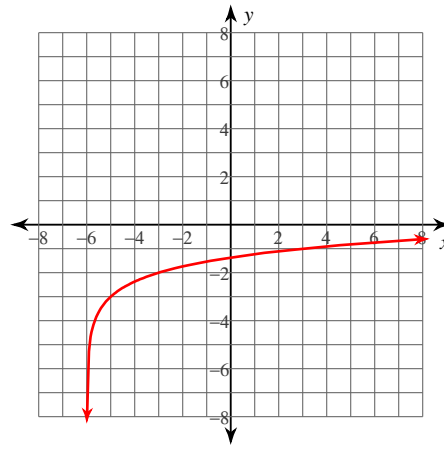
Domain: $x > 1$
Range: All reals

$$15) y = \log_2(x + 2) + 5$$



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

$$16) y = \log_3(x + 6) - 3$$



Domain: $x > -6$
Range: All reals

14.3 I can convert exponential equations to logarithmic form.

$$17) 9^1 = 9$$

$$\log_9 9 = 1$$

$$18) 64^{-\frac{1}{2}} = \frac{1}{8} \quad \log_{64} \frac{1}{8} = -\frac{1}{2}$$

$$19) 12^2 = 144$$

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

$$20) 7^{-2} = \frac{1}{49} \quad \log_7 \frac{1}{49} = -2$$

$$21) 5^{-4} = \frac{1}{625} \quad \log_5 \frac{1}{625} = -4$$

$$22) 16^2 = 256$$

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

$$23) 5^{-3} = \frac{1}{125} \quad \log_5 \frac{1}{125} = -3$$

$$24) 9^{-2} = \frac{1}{81} \quad \log_9 \frac{1}{81} = -2$$

$$25) 8^{-2} = \frac{1}{64}$$

$$\log_8 \frac{1}{64} = -2$$

$$26) 16^{-\frac{1}{2}} = \frac{1}{4}$$

$$\log_{16} \frac{1}{4} = -\frac{1}{2}$$

$$27) 8^2 = 64$$

$$\log_8 64 = 2$$

$$28) 12^0 = 1$$

$$\log_{12} 1 = 0$$

14.4 I can convert logarithmic equations into exponential form.

$$29) \log_{16} 256 = 2$$

$$16^2 = 256$$

$$30) \log_{81} \frac{1}{9} = -\frac{1}{2} \quad 81^{-\frac{1}{2}} = \frac{1}{9}$$

$$31) \log_2 16 = 4$$

$$2^4 = 16$$

$$32) \log_{\frac{1}{17}} \frac{1}{289} = 2 \left(\frac{1}{17} \right)^2 = \frac{1}{289}$$

$$34) \log_{125} 5 = \frac{1}{3} \quad 125^{\frac{1}{3}} = 5$$

$$36) \log_{17} 289 = 2$$

$$17^2 = 289$$

$$38) \log_9 81 = 2$$

$$9^2 = 81$$

$$40) \log_{13} 169 = 2$$

$$13^2 = 169$$

14.5 I can apply the properties of logarithms

$$41) \log_3 (11 \cdot 7^4)^2$$

$$2 \log_3 11 + 8 \log_3 7$$

$$43) \log_6 \frac{11^6}{12^4}$$

$$6 \log_6 11 - 4 \log_6 12$$

$$45) \log_7 \sqrt[3]{11 \cdot 10 \cdot 3}$$

$$\frac{\log_7 11}{3} + \frac{\log_7 10}{3} + \frac{\log_7 3}{3}$$

$$47) \log_5 \sqrt[3]{x \cdot y \cdot z}$$

$$\frac{\log_5 x}{3} + \frac{\log_5 y}{3} + \frac{\log_5 z}{3}$$

$$49) 5 \log_2 a + 5 \log_2 b$$

$$\log_2 (b^5 a^5)$$

$$33) \log_5 125 = 3$$

$$5^3 = 125$$

$$35) \log_5 25 = 2$$

$$5^2 = 25$$

$$37) \log_2 \frac{1}{8} = -3 \quad 2^{-3} = \frac{1}{8}$$

$$39) \log_{289} \frac{1}{17} = -\frac{1}{2} \quad 289^{-\frac{1}{2}} = \frac{1}{17}$$

$$42) \log_8 (uv^3)^3$$

$$3 \log_8 u + 9 \log_8 v$$

$$44) \log_5 (uv^6)^6$$

$$6 \log_5 u + 36 \log_5 v$$

$$46) \log_4 (10^2 \cdot 3^3)$$

$$2 \log_4 10 + 3 \log_4 3$$

$$48) \log_8 \frac{x^6}{y^5}$$

$$6 \log_8 x - 5 \log_8 y$$

$$50) 18 \log u - 6 \log v$$

$$\log \frac{u^{18}}{v^6}$$

$$51) \frac{\log_9 10}{2} + \frac{\log_9 11}{2} + \frac{\log_9 7}{2}$$

$$\log_9 \sqrt{770}$$

$$53) 20\log_7 u - 4\log_7 v$$

$$\log_7 \frac{u^{20}}{v^4}$$

$$55) 3\log_6 10 + 5\log_6 3$$

$$\log_6 (3^5 \cdot 10^3)$$

$$52) \log_7 x + \log_7 y + 2\log_7 z$$

$$\log_7 (yxz^2)$$

$$54) 2\log_8 a + 6\log_8 b$$

$$\log_8 (b^6 a^2)$$

$$56) \frac{\log_3 11}{3} + \frac{\log_3 7}{3} + \frac{\log_3 5}{3}$$

$$\log_3 \sqrt[3]{385}$$

14.6 I can Solve Logarithmic Equations

$$57) \log_{15} -3k = \log_{15} (-5k - 4)$$

$$\{-2\}$$

$$59) \log_{12} -2x = \log_{12} (9 - x)$$

$$\{-9\}$$

$$61) \log_{14} (2v + 2) = \log_{14} (3v - 10)$$

$$\{12\}$$

$$63) \ln -3a = \ln (-2a + 10)$$

$$\{-10\}$$

$$65) \log_8 4 + \log_8 4x^2 = 4$$

$$\{16, -16\}$$

$$67) \log_5 3 - \log_5 (x - 5) = \log_5 35 \quad \left\{ \frac{178}{35} \right\}$$

$$69) \log_7 4 - \log_7 (x - 2) = \log_7 28 \quad \left\{ \frac{15}{7} \right\}$$

$$71) \log_2 (x^2 + 8) - \log_2 6 = 1$$

$$\{2, -2\}$$

$$58) \log_{13} (2 - 4p) = \log_{13} -5p$$

$$\{-2\}$$

$$60) \log_{19} -4n = \log_{19} (3n - 7)$$

$$\text{No solution.}$$

$$62) \log_9 -4x = \log_9 -2x$$

$$\text{No solution.}$$

$$64) \log (-3x - 1) = \log (4x + 6)$$

$$\{-1\}$$

$$66) \log_5 (x^2 - 8) - \log_5 4 = \log_5 2$$

$$\{4, -4\}$$

$$68) \log_2 5 - \log_2 (x + 1) = 5 \quad \left\{ -\frac{27}{32} \right\}$$

$$70) \log_4 3 - \log_4 2x = 2 \quad \left\{ \frac{3}{32} \right\}$$

$$72) \log -4x + \log 9 = 2 \quad \left\{ -\frac{25}{9} \right\}$$