

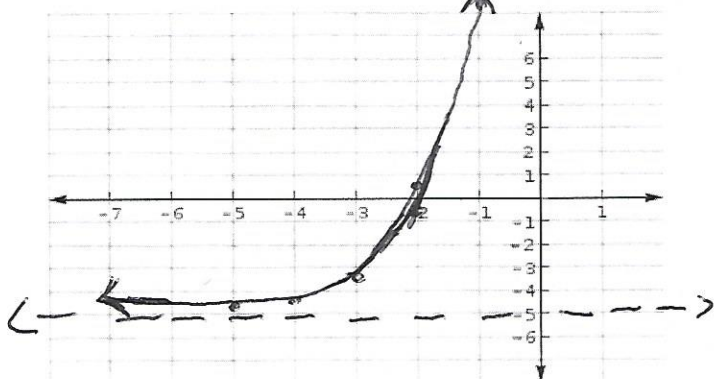
Review 7.1 to 7.3

Graph each function. State the domain and range.

(1) $f(x) = \frac{1}{2}(3)^{x+4} - 5$

H.A. $y = -5$

x	y
-5	-4.8
-4	-4.5
-3	-3.5
-2	-2.5
-1	8.5



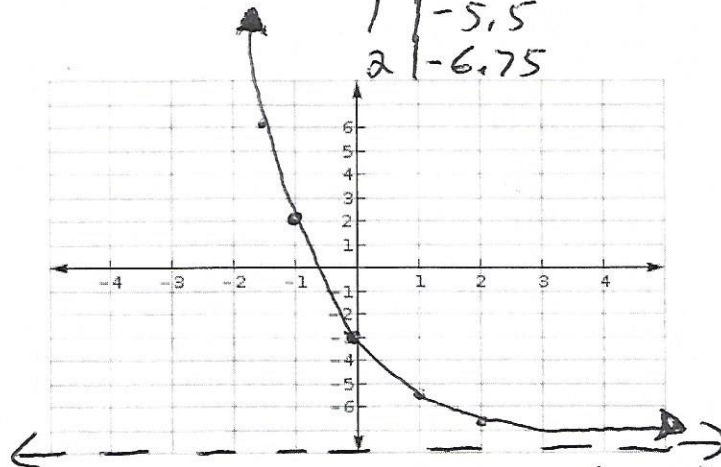
Domain: $(-\infty, \infty)$ Range: $(-5, \infty)$

Show all work.

(2) $f(x) = 5(\frac{1}{2})^x - 8$

H.A. $y = -8$

x	y
-2	12
-1	2
0	-3
1	-5.5
2	-6.75



Domain: $(-\infty, \infty)$ Range: $(-8, \infty)$

(3) Write the equation in logarithmic form. $729 = (9)^3$

$$\log_9 729 = 3$$

(4) Write the equation in exponential form. $\log_{625} 5 = \frac{1}{4}$

$$625^{\frac{1}{4}} = 5$$

Write an exponential function $y=ab^x$ for a graph that includes the following points.

(5) (1,21) and (0,6)

$$21 = ab^1 \quad 6 = ab^0$$

$$6 = a$$

$$\frac{21}{6} = \frac{6b^1}{6}$$

$$3.5 = b$$

$$y = 6(3.5)^x$$

(6) (1,12) and (0,3)

$$12 = ab^1 \quad 3 = ab^0$$

$$3 = a$$

$$\frac{12}{3} = \frac{3b^1}{3}$$

$$4 = b$$

$$y = 3(4)^x$$

Evaluate each expression.

(7) $\log_8 512 = x$

$8^x = 512$

$8^x = 8^3 \rightarrow x = 3$

(8) $\log_4 \frac{1}{64} = x$

$4^x = \frac{1}{64}$

$4^x = 4^{-3} \rightarrow x = -3$

Graph each function.

(9) $f(x) = \log_3(x+1) - 4$

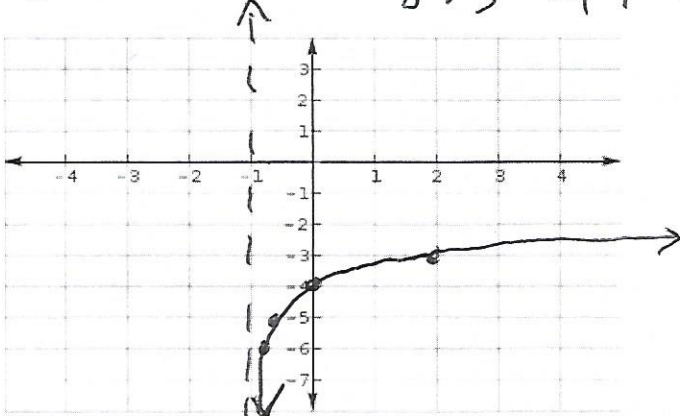
V.A. $x = -1$

$y+4 = \log_3(x+1)$

$3^{y+4} = x+1$

$3^{y+4} - 1 = x$

x	$3^{y+4} - 1$	y
-0.8	$3^{-6+4} - 1$	-6
-0.6	$3^{-5+4} - 1$	-5
0	$3^{-4+4} - 1$	-4
2	$3^{-3+4} - 1$	-3
8	$3^{-2+4} - 1$	-2



Domain: $(-1, \infty)$ Range: $(-\infty, \infty)$

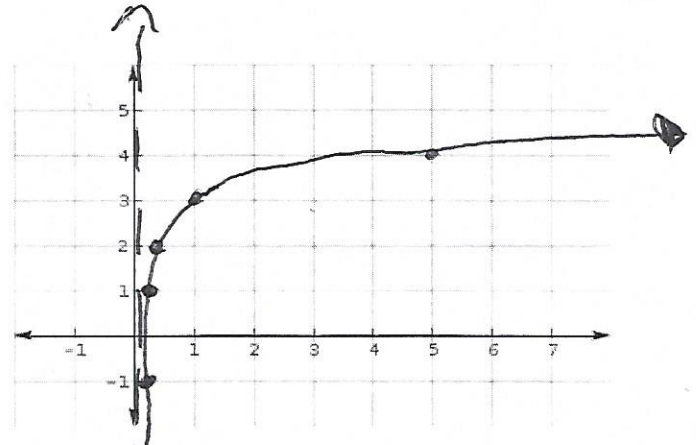
(10) $f(x) = \log_5(x) + 3$

V.A. $x = 0$

$y-3 = \log_5(x)$

$5^{y-3} = x$

x	5^{y-3}	y
0.04	5^{-7-3}	1
0.2	5^{-2-3}	2
1	5^{3-3}	3
5	5^{4-3}	4
25	5^{5-3}	5



Domain: $(0, \infty)$ Range: $(-\infty, \infty)$

Find the annual percent increase or decrease that the function models.

(11) $y = 0.35(1.3)^x$

(12) $y = 175(0.22)^x$

$1 - 0.22 = 0.78$

30% Increase

78% decrease

Solve.

(15) How much money invested at 4.25% compounded continuously for 5 years will yield \$1800? Use $A = Pe^{rt}$, round to the nearest penny.

$1800 = P e^{(0.0425)(5)}$

$1800 = P e^{0.2125}$

$\frac{1800}{e^{0.2125}} = P$

$\$1455.37 = P$