

Algebra 1: 5.1/5.2 Quiz Review

Name Answer Key

Use the simple and compound interest formula to complete the table. Round to the nearest cent.

Simple: $A = P + (Pr)t$

Compound: $A = P(1+r)^t$

1. Ye has \$700 to deposit into an account. The interest rate available for the account is 6%.

$P = 700$ $r = 6\%$ or 0.06

- a. If it costs \$200.00 to have your savings in a compound interest account, would it make sense to use that account if you were only going to save your money for 10 years? \$1253.59

$- 200.00$
\$1053.59 No

- b. What about for 20 years?

2244.99
 $- 200.00$
\$2044.99 Yes

Quantity	Time	Simple Interest Balance	Compound Interest Balance
Units	years	dollars	dollars
Expression	t	$700 + 700(0.06)t$	$700(1+0.06)^t$
	0	\$700	\$700
	3	\$826	\$833.71
	10	\$1120	\$1253.59
	20	\$1540	\$2244.99

2. Rapperville has a population of 18,000. Its population is increasing at a rate of 3.2%. Write a function to represent the population as a function of time. Determine the population after each given number of years. Round your answer to the nearest whole number.

$P = 18000$ $r = 3.2\%$ or 0.032

Function: $P(t) = P(1+r)^t$

$P(t) = 18000(1+0.032)^t = 18000(1.032)^t$

- a. 2 years

$P(2) = 18000(1.032)^2$
 $P(2) = 19170.432$
 ≈ 19170

- b. 10 years

$P(10) = 18000(1.032)^{10}$
 $P(10) = 24664.33883$
 ≈ 24664

- c. 20 years

$P(20) = 18000(1.032)^{20}$
 $P(20) = 33796.08945$
 ≈ 33796

3. Doglandia has a population of 85,000. Its population is decreasing at a rate of 2.8%. Write a function to represent the population as a function of time. Determine the population after each given number of years. Round your answer to the nearest whole number.

$P = 85000$ $r = 2.8\%$ or 0.028

Function: $P(t) = P(1-r)^t$

$P(t) = 85000(1-0.028)^t = 85000(0.972)^t$

- a. 8 years

$P(8) = 85000(0.972)^8$
 $P(8) = 67725.0049$
 ≈ 67725

- b. 5 years

$P(5) = 85000(0.972)^5$
 $P(5) = 73748.00057$
 ≈ 73748

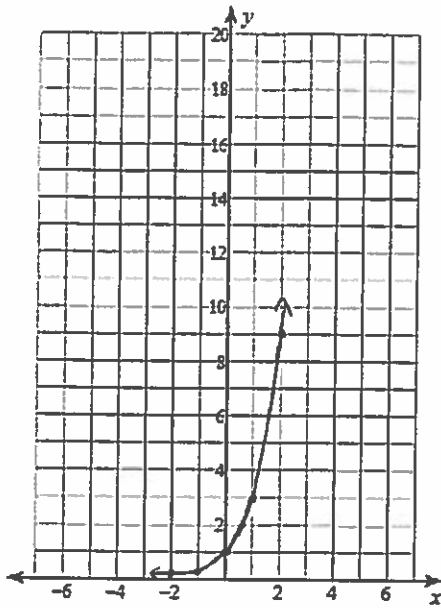
- c. 16 years

$P(16) = 85000(0.972)^{16}$
 $P(16) = 53960.89751$
 ≈ 53961

Complete the table and graph each function. List the y-intercept, asymptote, domain, and range.

4. $y = 3^x$

x	y
-2	$\frac{1}{9}$
-1	$\frac{1}{3}$
0	1
1	3
2	9

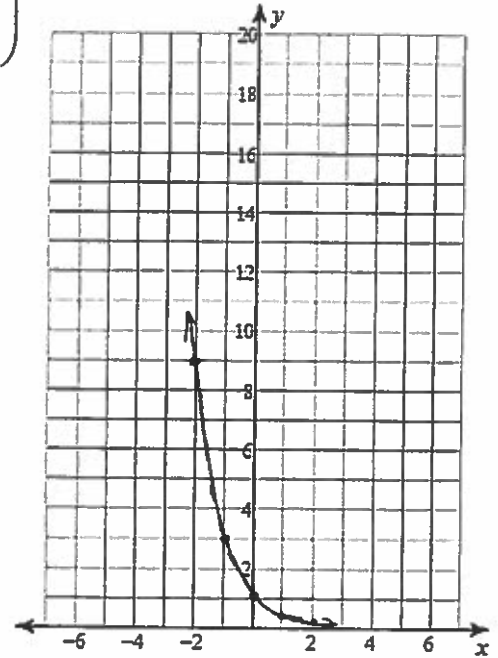


y-intercept: $(0, 1)$ asymptote: $y = 0$

domain: All real #s range: $y > 0$

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

x	y
-2	9
-1	3
0	1
1	$\frac{1}{3}$
2	$\frac{1}{9}$

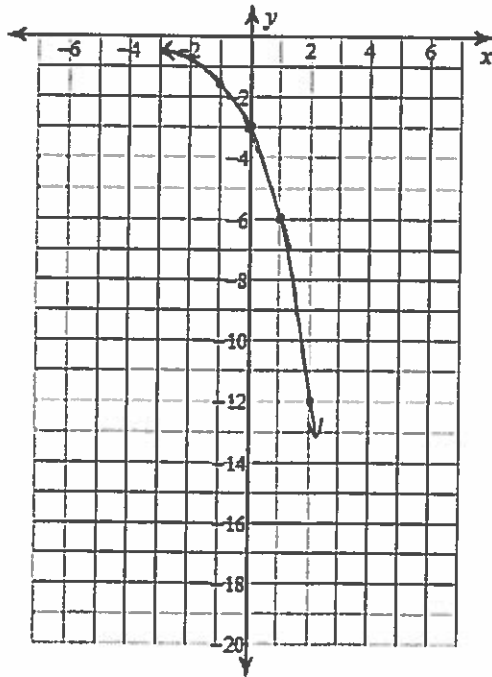


y-intercept: $(0, 1)$ asymptote: $y = 0$

domain: All real #s range: $y > 0$

6. $y = -3 \cdot 2^x$

x	y
-2	$-\frac{3}{4}$
-1	$-\frac{3}{2}$
0	-3
1	-6
2	-12

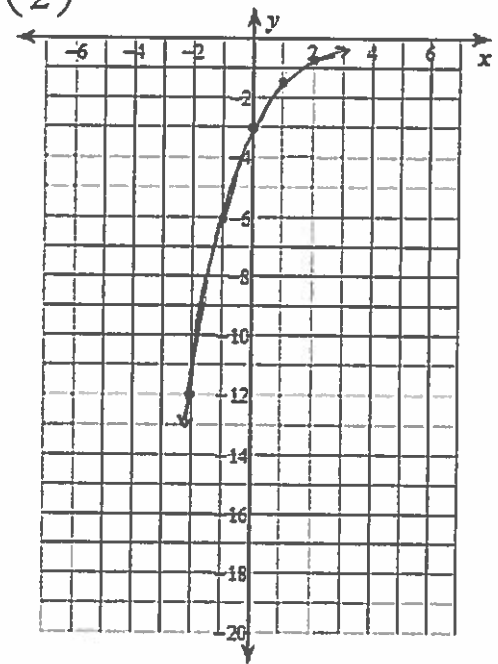


y-intercept: $(0, -3)$ asymptote: $y = 0$

domain: All real #s range: $y < 0$

7. $y = -3 \cdot \left(\frac{1}{2}\right)^x$

x	y
-2	-12
-1	-6
0	-3
1	$-\frac{3}{2}$
2	$-\frac{3}{4}$



y-intercept: $(0, -3)$ asymptote: $y = 0$

domain: All real #s range: $y < 0$