

Review for Ch. 6 Test

Write the expression in rational exponent form:

$$(\sqrt[5]{8})^3$$

$$= 8^{\frac{3}{5}}$$

Write the expression in radical form:

$$25^{\frac{3}{4}}$$

$$\left(\sqrt[4]{25}\right)^3$$

Does the table represent a *linear*, *quadratic*, *exponential growth* or *exponential decay* function?

x	0	1	2	3
y	8	4	2	1

$$\underbrace{\quad}_{x^{\frac{1}{2}}} \quad \underbrace{\quad}_{x^{\frac{1}{2}}} \quad \underbrace{\quad}_{x^{\frac{1}{2}}}$$

Exponential decay

Simplify:

$$\frac{9x^{-4}}{6x^2} = \frac{3}{2x^2x^4} = \boxed{\frac{3}{2x^6}}$$

Evaluate:

$$\sqrt[5]{-243} = \boxed{-3}$$

A car depreciates at a rate of 10% each year. The car currently has a value of \$12,000.

- a. Write a function to model this situation.

$$y = 12000(1 - .1)^t$$

- b. What will its value be in 10 years?

$$y = 12000(.9)^t$$

$$y = 12000(.9)^{10}$$

$$= \boxed{\$4184.14}$$

Does the table represent a *linear*, *quadratic*, *exponential growth* or *exponential decay* function?

x	-2	-1	0	1	2	3
f(x)	12	3	0	3	12	27

$$\begin{array}{cccccc} \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} \\ -9 & -3 & +3 & +9 & +15 & \\ \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \underbrace{\quad} & \\ +6 & +6 & +6 & +6 & & \end{array}$$

Quadratic

A bacteria starts with 400 cells. If it triples every hour, how many cells are there after 7 hours?

$$y = a(b)^x$$

$$y = 400(3)^7$$
$$= \boxed{874,800}$$

A savings account compounds interest quarterly. The interest rate is 12% and you deposit \$5000 into the account. How much money have you earned after 7 years?

$$y = P\left(1 + \frac{k}{n}\right)^{nt}$$

$$y = 5000\left(1 + \frac{.12}{4}\right)^{28}$$

$$= \boxed{\$11459.64}$$

Does the table represent a *linear*, *quadratic*, *exponential growth* or *exponential decay* function?

x	f(x)
-2	$\frac{1}{9}$
-1	$\frac{1}{3}$
0	1
1	3

) x3
) x3
) x3

Exponential
Growth

The population of a Kansas City suburb is 40,000. It is increasing by 2% annually. How many people live in the suburb after 12 years?

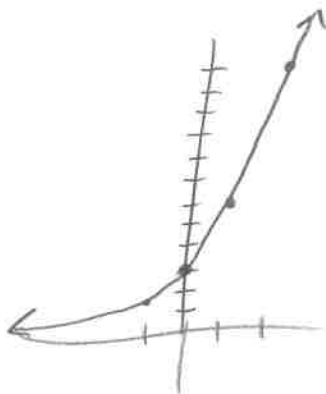
$$y = a(1+r)^t$$
$$y = 40000(1+.02)^{12}$$
$$= \boxed{50729.67}$$

Graph the function:

$$g(x) = 3(2)^x$$

x	y
-1	1.5
0	3
1	6
2	12

$3(2)^{-1}$



Does the table represent a *linear*, *quadratic*, *exponential growth* or *exponential decay* function?

x	1	2	3	4	5	6
f(x)	2	6	10	14	18	22

+4 +4 +4 +4 +4

linear

