

Semester review A

Multiply.

$$(x-5)^2$$

$$(x-5)(x-5)$$

$$x^2 - 5x - 5x + 25$$

$$x^2 - 10x + 25$$

$$(x+3)^3$$

$$(x+3)(x+3)(x+3)$$

$$x^2 + 3x + 3x + 9$$

$$(x+3)(x^2 + 6x + 9)$$

$$x^3 + 6x^2 + 9x$$

$$3x^2 + 18x + 27$$

$$x^3 + 9x^2 + 27x + 27$$

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Factor completely.

$$-3n^2 - 38n + 56$$

$$-(3n^2 + 38n - 56)$$

56:1
28:2
14:4

$$-(3n-4)(n+14)$$

$$\begin{array}{r} -4n \\ 42n \\ \hline 38n \end{array}$$

$$t^4 - 81$$

$$(t^2+9)(t^2-9)$$

$$(t^2+9)(t+3)(t-3)$$

$$x^3 + 3x^2 - 9x - 27$$

$$x^2(x+3) - 9(x+3)$$

$$(x^2 - 9)(x+3)$$

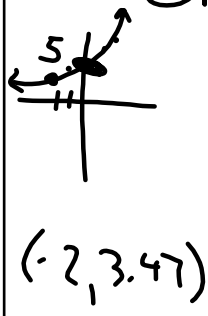
$$(x+3)(x-3)(x+3)$$

$$(x+3)^2(x-3)$$

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Tell whether the function is a growth or decay.
 ****Then graph, using a table.

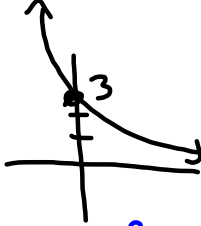
$f(x) = 5(1.2)^x$
 Growth



X	Y	Equation
-2	3.47	$5(1.2)^{-2}$
-1	4.16	$5(1.2)^{-1}$
0	5	$5(1.2)^0$
1	6	
2	7.2	

$(-2, 3.47)$

$f(x) = 3(0.7)^x$
 Decay



X	Y	Equation
-2	6.12	$3(.7)^{-2}$
-1	4.28	$3(.7)^{-1}$
0	3	$3(.7)^0$
1	2.1	$3(.7)^1$
2	1.47	$3(.7)^2$

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Clara invests \$5000 in an account that pays ^{6%} $\frac{6}{100}$ $.06$ interest per year.
 How much will her investment be worth in 7 years?

$$f(x) = 5000(1.06)^7$$

It will be worth \$ _____ in 7 years.

Pablo's new car is worth \$5500. It decreases in value ^{.18} 18% each year.

What will be the value in 5 years?

$$5500(.82)^5$$

The value will be \$ _____ in 5 years

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1. Change $6^4 = 1296$ to logarithmic form. $\log_6 1296 = 4$

2. Change $\log_{27} 9 = \frac{2}{3}$ to exponential form. $27^{\frac{2}{3}} = 9$

Calculate the following using mental math.

3. $\log_{10} 100,000 = 5$ $10^x = 100,000$ $10^1 = 10$

4. $\log_{64} 8 = \frac{1}{2}$ $64^x = 8$ $64^{\frac{1}{2}} = \sqrt{64}$ $10^2 = 100$

5. $\log_3 \frac{1}{27} = -3$ $10^3 = 1000$ $10^4 = 10000$

$$3^{\otimes 3} = 27$$

$$3^x = \frac{1}{27}$$

$$3^{-3} = \frac{1}{27}$$

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$$(x-h)^2 + (y-k)^2 = r^2$$

center (h, k) and radius r
point (x, y) lies on the circle

$$(x - 3)$$

Write the equation of a circle with center (-3, 4) and radius $r = 6$.

$$(x + 3)^2 + (y - 4)^2 = 36$$

Write an equation for the circle with center (-4, 11) and containing the point (5, -1)

$$(x + 4)^2 + (y - 11)^2 = 225$$

$$\sqrt{(-4-5)^2 + (11-(-1))^2}$$

$$\sqrt{(-9)^2 + (12)^2}$$

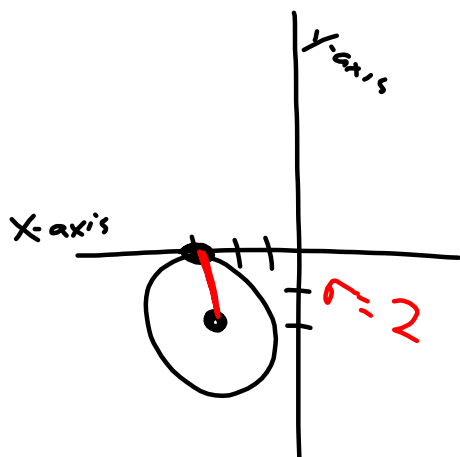
$$\sqrt{81 + 144}$$

$$\sqrt{225}$$

$$15$$

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A circle with Center at $(-3, -2)$ and tangent to the x-axis.



$$(x+3)^2 + (y+2)^2 = 4$$

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