

Semester review A

Multiply.

$(x-5)^2$
 $(x-5)(x-5)$
 $x^2 - 10x + 25$

$(x+3)^3$
 $(x+3)(x+3)(x+3)$
 $(x+3)(x^2 + 6x + 9)$
 $x^3 + 6x^2 + 9x + 3x^2 + 18x + 27$
 $x^3 + 9x^2 + 27x + 27$

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Factor completely.

$-3n^2 - 38n + 56$
 $-(3n+38n-56)$
 $-(3n-4)(n+14)$
 -4
 42
 $(x^3 + 3x^2 - 9x - 27)$
 $x^2(x+3) - 9(x+3)$
 $(x+3)(x^2 - 9)$
 $(x+3)(x+3)(x-3)$

$t^4 - 81$
 $(t^2+9)(t^2-9)$
 $(t^2+9)(t+3)(t-3)$

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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

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

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

$$F(x) = 5000(1.06)^x$$

$$F(7) = \$7,518$$

Pablo's new car is worth \$5500. It decreases in value 18% each year.
 What will be the value in 5 years? 1-.18

$$F(x) = 5500(.82)^x$$

$$F(5) = \$2,039$$

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- Change $6^4 = 1296$ to logarithmic form. $\log_6 1296 = 4$
- Change $\log_{27} 9 = \frac{2}{3}$ to exponential form. $27^{\frac{2}{3}} = 9$

Calculate the following using mental math.

- $\log_{10} 100,000 = x$ $10^x = 100,000$ $x = 5$
- $\log_{64} 8 = x$ $64^x = 8$ $x = \frac{1}{2}$
- $\log_3 \frac{1}{27} = x$ $3^x = \frac{1}{27}$ $x = -3$

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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

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

$$(x-(-3))^2 + (y-4)^2 = 6^2$$

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

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

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

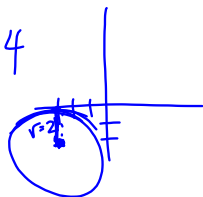
$$D = \sqrt{81 + 144} = \sqrt{225} = 15$$

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

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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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