

Cumulative Review Homework #1

Name: _____

Highlight your answers on this page and show all work (staple to sheet if needed). This is graded for accuracy.

| | | |
|---|---|---|
| <p>Factor Completely: <small>Hint – switch 2nd and 3rd terms!</small> $2x^3 + x^2 - 50x - 25$</p> | <p>Factor Completely: $x^6 - 64$</p> | <p>Solve: $x^2 + 4x + 3 = 0$</p> |
| <p>State the interval that represents the Domain: $f(x) = x - 4 + 7$</p> | <p>State the interval that represents the Range: $f(x) = - x + 5 - 6$</p> | <p>State the End Behavior of the following function: $(x + 2)(x + 1)(x^2 - 3)$</p> |
| <p>Which function increases faster: $y = 2x$ or $y = 2^x$</p> | <p>Which function has Domain and Range as $(-\infty, +\infty)$ $f(x) = (x + 4)^2 - 7$ $g(x) = \sqrt{x + 4} - 7$ $h(x) = (x + 4)^3 - 7$</p> | <p>Which function has a higher vertex? $f(x) = -(x - 3)^2 - 4$ $g(x) = x - 3 - 5$</p> |
| <p>Find all roots: $8x^2 + 6x = -5$</p> | <p>Simplify: $(4x - 1)^2$</p> | <p>Simplify: $(2x - 1)^3(x - 2)$</p> |

Find all roots to the following equations (highlight them). Strategy Help: Factor as far as you can, then set each factor equal to zero and solve. Remember, there should be as many roots as the degree of the polynomial dictates (Fundamental Theorem of Algebra).

A) $8n^2 + 4n - 16 = -n^2$

D) $x^4 - 14x^2 + 45 = 0$

B) $x^3 - 1 = 0$

E) $x^6 - 2x^4 - 4x^2 + 8 = 0$

C) $x^3 - 2x^2 + 3x - 6 = 0$

F) $x^8 - 26x^4 + 25 = 0$