Math III Name_____ ID: 1

Basic Skills 2

Date_____ Period____

Describe the end behavior of each function.

As x --> + infinity, then f(x) --> $-\infty$

As x --> - infinity, then f(x) --> ∞

1) $f(x) = -x^5 + 3x^3 - x + 2$

negative L.C. ↑

odd degree ↘

Factor each.

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

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

$= x(x+1)(x+3)$ 1, 3, 3, 4

3) $f(x) = x^3 + 8x^2 + 16x$

$= x(x^2+8x+16)$

$= x(x+4)(x+4)$

$= x(x+4)^2$

16: 4, 4; 4, 8

Simplify each expression.

4) $-4x(4x + 1) + 3x^2$

$-16x^2 - 4x + 3x^2$

$-13x^2 - 4x$

Solve each equation.

5) $-4(4x - 4) = 64$

$-16x + 16 = 64$

$-16 \quad -16$

$\frac{-16x}{-16} = \frac{48}{-16}$

$x = -3$

6) $-2(-5 - m) = 15 + 3m$

$10 + 2m = 15 + 3m$

$-2m \quad -2m$

$10 = 15 + m$

$-15 \quad -15$

$m = -5$

Solve each equation by factoring.

7) $n^2 + 2n - 8 = 0$

$n^2+2n-8=0$

$(n+4)(n-2)=0$

$n+4=0 \quad n-2=0$

$n=-4 \quad n=2$

8) $r^2 + 8r + 15 = 0$

$(r+3)(r+5)=0$

$r+3=0 \quad r+5=0$

$-3 \ -3 \quad -5=-5$

$r=-3 \quad r=-5$

9) $5x^2 + 11x + 2 = 0$

$x^2+11x+10=0$

$(x+10)(x+1)=0$

$(x+2)(5x+1)=0$

$x+2=0 \quad 5x+1=0$

$x=-2 \quad x=-\frac{1}{5}$

Simplify. Your answer should contain only positive exponents.

10) $2x^4 \cdot \left(x^{-2}\right)^3$

$2x^4 x^{-6} \rightarrow 2x^{-2} \rightarrow \boxed{\frac{2}{x^2}}$