

Unit 3 Review - Class Notes

Naming Polynomials

1) By # of Terms:

1 - monomial

2 - binomial

3 - trinomial

4 - 4 term polynomial

By Degree (biggest exponent):

no variable: constant

x: linear

 x^2 : quadratic x^3 : cubic x^4 : 4th degree

Simplify.

2) $(6x^3 - 2x - 7x^2 + 5x^4) - (4x - 8x^3 + 6x^2 - 5x^4)$

$$= 6x^3 - 2x - 7x^2 + 5x^4 - 4x + 8x^3 - 6x^2 + 5x^4$$

$$= \boxed{10x^4 + 14x^3 - 13x^2 - 6x}$$

Find each product.

3) $(5v + 6)(6v^2 - 3v - 2)$

$$= 30v^3 - 15v^2 - 10v + 36v^2 - 18v - 12$$

$$= \boxed{30v^3 + 21v^2 - 28v - 12}$$

Divide. You can use either long division or synthetic division.

3) $(a^3 - 2a^2 - 17a + 1) \div (a - 5)$

$$\begin{array}{r}
 a^2 + 3a - 2 \\
 a-5 \overline{) a^3 - 2a^2 - 17a + 1} \\
 \underline{\ominus a^3 - 5a^2} \\
 3a^2 - 17a \\
 \underline{\ominus 3a^2 - 15a} \\
 -2a + 1 \\
 \underline{\ominus -2a + 10} \\
 -9
 \end{array}$$

$$a^2 + 3a - 2 - \frac{9}{a-5}$$

LONG
DIVISION

$$\begin{array}{r|rrrr}
 5 & 1 & -2 & -17 & 1 \\
 & & \oplus & & \\
 \hline
 & & 5 & 15 & -10 \\
 \hline
 * & 1 & 3 & -2 & -9 \text{ REMAINDER} \\
 & x^2 & x^1 & x^0 &
 \end{array}$$

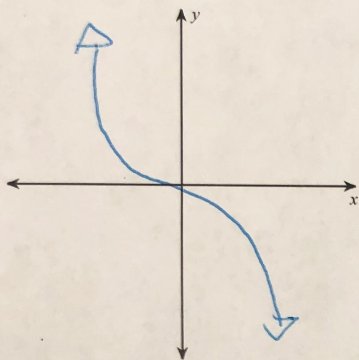
SYNTHETIC
DIVISION

$$1a^2 + 3a - 2 - \frac{9}{a-5}$$

Sketch the basic graph shape for each function. Then state the end behavior.

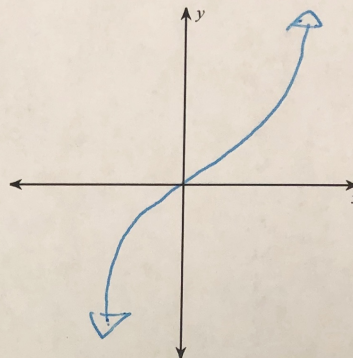
4) $f(x) = -x^3$

as $x \rightarrow +\infty$, $y \rightarrow$ DOWN $-\infty$
as $x \rightarrow -\infty$, $y \rightarrow$ UP $+\infty$



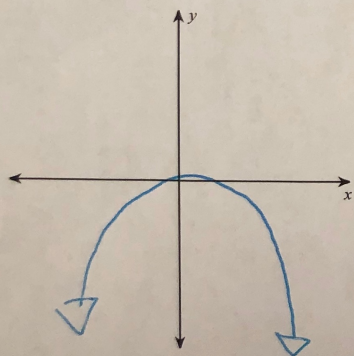
5) $f(x) = x^3$

as $x \rightarrow +\infty$, $y \rightarrow$ $+\infty$
as $x \rightarrow -\infty$, $y \rightarrow$ $-\infty$



6) $f(x) = -x^2$

as $x \rightarrow +\infty$, $y \rightarrow$ $-\infty$
as $x \rightarrow -\infty$, $y \rightarrow$ $-\infty$



7) $f(x) = x^2$

as $x \rightarrow +\infty$, $y \rightarrow$ $+\infty$
as $x \rightarrow -\infty$, $y \rightarrow$ $+\infty$

