

Algebraic Connections

WS F.10 - Review for Test F.1

1-31-13

Name: KEY UNIT F EXAM 1

Period: _____ Date: _____

Find the degree of each monomial. (3 pts. each)

1. $12a^3b^2c$ $3+2+1 =$ 6

2. $-3x^4y^5$ $4+5 =$ 9

Rewrite each polynomial in standard form. Then identify the leading coefficient, degree, and number of terms.
Name the polynomial. (5 pts. each)

3. $3x^2 - 5x^3 + 2x - 6$ $-5x^3 + 3x^2 + 2x - 6$

4. $9 + 11x$ $11x + 9$

Leading coefficient -5

Leading coefficient 11

Degree 3 Number of terms 4

Degree 1 Number of terms 2

Name Cubic Quadrinomial

Name Linear Binomial

Add or Subtract. Write your answer in standard form. (3 pts. each)

5. $(4x^2 + 3) + (4 + 5x^2)$

7. $(12x^2 + 2x^3 + 9) + (6x^3 + 5x^2 - 3x)$

$9x^2 + 7$

$8x^3 + 17x^2 - 3x + 9$

6. $(10x^3 - 7x^2) - (3x^3 + 2x^2 + 4)$

8. $(9x^3 - 3x + 5x^2) - (5x^3 + 3x^2 + 9)$

$10x^3 - 7x^2 - 3x^3 - 2x^2 - 4$
 $7x^3 - 9x^2 - 4$

$9x^3 - 3x + 5x^2 - 5x^3 - 3x^2 - 9$
 $4x^3 + 2x^2 - 3x - 9$

Find each product. (3 pts. each)

9. $(3x - 2)(2x^3 - x^2 + 4x + 4)$

11. $(3x + 4)^2$ $(3x + 4)(3x + 4)$
 $9x^2 + 12x + 12x + 16$

$6x^4 - 3x^3 + 12x^2 + 12x - 4x^3 + 2x^2 - 8x - 8$

$6x^4 - 7x^3 + 14x^2 + 4x - 8$

$9x^2 + 24x + 16$

10. $3y(2x^2 + 5xy)$

12. $(x + 5)(x - 3)$

$6x^2y + 15xy^2$

$x^2 - 3x + 5x - 15$
 $x^2 + 2x - 15$

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Divide by using long division.

$$\begin{array}{r}
 5x-2 \\
 4x-1 \overline{) 20x^2 - 13x + 2} \\
 \underline{20x^2 - 5x} \\
 -8x + 2 \\
 \underline{-8x + 2} \\
 0
 \end{array}$$

5x-2

$$\begin{array}{r}
 6x-17 \\
 x+4 \overline{) 6x^2 + 7x - 2} \\
 \underline{6x^2 + 24x} \\
 -17x - 2 \\
 \underline{-17x - 68} \\
 66
 \end{array}$$

6x-17 + $\frac{66}{x+4}$

Divide by using synthetic division.

15. $(3x^2 - 8x + 4) \div (x - 2)$

$$\begin{array}{r}
 2 \\
 3 8 4 \\
 \underline{+} 6 4 \\
 3 2 0
 \end{array}$$

3x-2

16. $(-6x^2 + 5x - 10) \div (x + 7)$

$$\begin{array}{r}
 -7 \\
 -6 5 10 \\
 \underline{+} 42 329 \\
 -6 47 339
 \end{array}$$

$-6x+47 + \frac{-339}{x+7}$

Use synthetic substitution to evaluate the polynomial for the given value.

17. $4x^2 - 9x + 2$ for $x = 3$

$$\begin{array}{r}
 3 \\
 4 9 2 \\
 \underline{+} 12 9 \\
 4 3 11
 \end{array}$$

11

18. $2x^3 + 5x^2 - 8x + 1$ for $x = -2$

$$\begin{array}{r}
 -2 \\
 2 5 8 1 \\
 \underline{+} 4 2 20 \\
 2 1 10 21
 \end{array}$$

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