

Name _____

1) What is the degree of $5xy^4z$? 6

2) $(2x^2 - 4 + 5x) - (-x^2 + 8x) - 2(9x + 1 + 3x^2)$
 $2x^2 - 4 + 5x + x^2 - 8x - 18x - 2 - 6x^2$
 $-3x^2 - 21x - 6$

Add or Subtract. Write the polynomial in standard form. Identify the leading coefficient, degree, and number of terms. Name the polynomial

3) $(2x^4 - 6x^2 + 8) - (-5x^4 + 2x^2 - 12)$

Standard Form: $7x^4 - 8x^2 + 20$

Leading Coefficient: 7

Degree: 4

Number of Terms: 3

Name: *quartic trinomial*

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

Standard Form: $5x^2 - 3$

Leading Coefficient: 5

Degree: 2

Number of Terms: 2

Name: *quadratic binomial*

Multiply the following polynomials.

5) $-2x^3(x - 3)(4x + 1)$

$(-2x^4 + 6x^3)(4x + 1)$
 $-8x^5 - 2x^4 + 24x^4 + 6x^3$
 $-8x^5 + 22x^4 + 6x^3$

7) $a^2b(2a^3b - 5ab^4)$

$2a^5b^2 - 5a^3b^5$

6) $(x^2 + xy - 6y^2)(y^2 + 3x)$

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

y^2	x^2y^2	xy^3	$-6y^4$
$3x$	$3x^3$	$3x^2y$	$-18xy^2$

 $3x^3 + 3x^2y + x^2y^2 - 18xy^2 + xy^3 - 6y^4$

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

$(-7x + x^2 - 6)(3x + 5)(3x + 5)$
 $(x^2 - 7x - 6)(9x^2 + 30x + 25)$

x^2	$9x^4$	$30x^3$	$25x^2$
$-7x$	$-63x^3$	$-210x^2$	$-175x$
-6	$-54x^2$	$-180x$	-150

 $9x^4 - 33x^3 - 239x^2 - 355x - 150$

... continuation of each circle.

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Expand the expressions.

9) $(2x - 3)^5$

$$1 (2x)^5 3^0 = 32x^5$$

$$5 (2x)^4 3^1 = -240x^4$$

$$10 (2x)^3 3^2 = 720x^3$$

$$10 (2x)^2 3^3 = -1080x^2$$

$$5 (2x)^1 3^4 = 810x$$

$$1 (2x)^0 3^5 = 243$$

10) $(4x + 5y)^3$

$$1 (4x)^3 (5y)^0 = 64x^3$$

$$3 (4x)^2 (5y)^1 = 240x^2y$$

$$3 (4x)^1 (5y)^2 = 300xy^2$$

$$1 (4x)^0 (5y)^3 = 125y^3$$

$$32x^5 - 240x^4 + 720x^3 - 1080x^2 + 810x - 243$$

$$64x^3 + 240x^2y + 300xy^2 + 125y^3$$

11) A trick coin is designed to land heads up with a probability of 80%. You flip the coin 7 times. What is the probability of getting 6 or 7 heads?

$n = 7$
 $r = 6, 7$
 $p = .8$
 $q = .2$

$$P(6) = {}_7C_6 (.8)^6 (.2)^1 = .3670016$$

$$P(7) = {}_7C_7 (.8)^7 (.2)^0 = .2097152$$

$$.5767168$$

12) A 20 question test is given in your English class. The test only contains true/false questions. What is the probability that you get exactly 16 questions correct?

$n = 20$
 $r = 16$
 $p = .5$
 $q = .5$

$$P(16) = {}_{20}C_{16} (.5)^{16} (.5)^4 = .0046$$

13) 7 out of every 10 students at Buford High School hoped to have a snow day today. Suppose you survey the students in your math class (16 students). What is the probability that at least 4 of these wanted a snow day?

$n = 16$
 $r = \geq 4$
 $p = 7/10 (.7)$
 $q = 3/10 (.3)$

$$P(0) = {}_{16}C_0 (.7)^0 (.3)^{16} = .000000004$$

$$P(1) = {}_{16}C_1 (.7)^1 (.3)^{15} = .000000161$$

$$P(2) = {}_{16}C_2 (.7)^2 (.3)^{14} = .0000028$$

$$P(3) = {}_{16}C_3 (.7)^3 (.3)^{13} = .000030624$$

$$1 - .000033589$$

$$= .999966$$

Factor completely.

$$14) -9x^4 - 33x^3 - 18x^2$$

$$-3x^2(3x^2 + 11x + 6)$$

$$(3x^2 + 9x)(x + 2)$$

$$3x(x + 3)2(x + 3)$$

$$\boxed{-3x^2(3x + 2)(x + 3)}$$

$$\frac{18}{9 \times 2}$$

$$15) 2x^6 - 432$$

$$2(x^6 - 216)$$

$$a = x^2 \quad b = 6$$

$$\boxed{2(x^2 - 6)(x^4 + 6x^2 + 36)}$$

$$16) 4x^4 - 72x^2 + 128$$

$$4(x^4 - 18x^2 + 32)$$

$$4(x^2 - 2)(x^2 - 16)$$

$$\boxed{4(x^2 - 2)(x + 4)(x - 4)}$$

$$\frac{32}{-2 \times -16}$$

$$17) 3x^6 - 6x^5 - 15x^4 + 30x^3$$

$$3x^3(x^3 - 2x^2 - 5x + 10)$$

$$x^2(x - 2) - 5(x - 2)$$

$$\boxed{3x^3(x^2 - 5)(x - 2)}$$

$$18) x^{10} + 8x^7 - 9x^6 - 72x^3$$

$$x^3(x^7 + 8x^4 - 9x^3 - 72)$$

$$x^4(x^3 + 8) - 9(x^3 + 8)$$

$$x^3(x^4 - 9)(x^3 + 8)$$

$$\boxed{x^3(x^2 + 3)(x^2 - 3)(x + 2)(x^2 - 2x + 4)}$$

$$19) -x^6 - 7x^3 + 8$$

$$-(x^6 + 7x^3 - 8)$$

$$-(x^3 + 8)(x^3 - 1)$$

$$\boxed{-(x + 2)(x^2 - 2x + 4)(x - 1)(x^2 + x + 1)}$$

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Acc Geom/Adv Alg
Test Review - Module 10

Divide using the method of your choice.

20) $(x^4 + x^3 - 1) \div (x - 2)$

$$\begin{array}{r|rrrrr} 2 & 1 & 1 & 0 & 0 & -1 \\ & \downarrow & 2 & 6 & 12 & 24 \\ & 1 & 3 & 6 & 12 & \underline{23} \end{array}$$

$$\boxed{x^3 + 3x^2 + 6x + 12 + \frac{23}{x-2}}$$

21) $(2x^4 + 10x^2 - 3) \div (x^2 + 7)$

$$\begin{array}{r} 2x^2 + 0x - 4 \\ x^2 + 0x + 7 \overline{) 2x^4 + 0x^3 + 10x^2 + 0x - 3} \\ \underline{-2x^4 + 0x^3 + 14x^2} \downarrow \\ 0x^3 - 4x^2 + 0x - 3 \\ \underline{-0x^3 + 0x^2 + 0x} \downarrow \\ -4x^2 + 0x - 3 \\ \underline{+4x^2 + 0x + 28} \\ 25 \end{array}$$

$$\boxed{2x^2 - 4 + \frac{25}{x^2 + 7}}$$

22) $(9x^3 - 70x^2 + 103x - 49) \div (9x - 7)$

$$\begin{array}{r} x^2 - 7x + 6 \\ 9x - 7 \overline{) 9x^3 - 70x^2 + 103x - 49} \\ \underline{-9x^3 + 7x^2} \downarrow \\ -63x^2 + 103x \\ \underline{+63x^2 - 49x} \downarrow \\ 54x - 49 \\ \underline{-54x + 42} \\ -7 \end{array}$$

$$\boxed{x^2 - 7x + 6 + \frac{-7}{9x - 7}}$$

23) $(5x^5 - 2x^4 + x^3 - 7x^2 - 6x + 9) \div (x + 1)$

$$\begin{array}{r|rrrrrrr} -1 & 5 & -2 & 1 & -7 & -6 & 9 \\ & \downarrow & -5 & 7 & -8 & 15 & -9 \\ & 5 & -7 & 8 & -15 & 9 & \underline{0} \end{array}$$

$$\boxed{5x^4 - 7x^3 + 8x^2 - 15x + 9}$$

Sum equation of each circle.

Accelerated Geometry

Extra Review Problems

Multiply.

$$\begin{aligned}
 1) & -(4x-1)^2(x-1)^2 \\
 & -(4x-1)(4x-1)(x-1)(x-1) \\
 & -(16x^2-8x+1)(x^2-2x+1) \\
 & (-16x^2+8x-1)(x^2-2x+1)
 \end{aligned}$$

$$\begin{array}{r|cc}
 & -16x^2+8x-1 & \\
 x^2 & -16x^4 & 8x^3 & -x^2 \\
 -2x & 32x^3 & -16x^2 & 2x \\
 1 & -16x^2 & 8x & -1
 \end{array}$$

$$\boxed{-16x^4 + 40x^3 - 33x^2 + 10x - 1}$$

Factor the following polynomials

$$\begin{aligned}
 2) & 40x^6 - 135x^3 \\
 & 5x^3(8x^3 - 27) \\
 & a=2x \quad b=3
 \end{aligned}$$

$$\boxed{5x^3(2x-3)(4x^2+6x+9)}$$

$$\begin{aligned}
 3) & -2x^4 + 3x^3 + 2x - 3 \\
 & -(2x^4 - 3x^3)(2x+3) \\
 & x^3(2x-3) - 1(2x-3) \\
 & -(x^3-1)(2x-3)
 \end{aligned}$$

$$\boxed{-(x-1)(x^2+x+1)(2x-3)}$$

Use synthetic or long division to divide the polynomial.

$$4) (2x^4 + 3x^3 + 21x + 4) \div (x^2 + 3x - 6)$$

$$\begin{array}{r}
 \overline{2x^2-3x+21} \\
 x^2+3x-6 \overline{) 2x^4+3x^3+0x^2+21x+4} \\
 \underline{-2x^4-6x^3+12x^2} \downarrow \\
 \overline{-3x^3+12x^2+21x} \\
 \overline{+3x^3+9x^2-18x} \downarrow \\
 \overline{21x^2+3x+4} \\
 \overline{-21x^2-63x+126} \\
 \overline{-60x+130}
 \end{array}$$

$$\boxed{2x^2-3x+21 + \frac{-60x+130}{x^2+3x-6}}$$