Polynomial Quiz Study Guide Name: Key

Naming Polynomials Practice:

C 1. $-2x^4$
F 2. -7
A 3. $-x^2$
D 4. $1-2xy^5$
B/J 5. $3x^2y-4xy+2y$
I 6. $4x^3y^2$
G 7. $5x$
E 8. $7x^2+12$
H 9. x^3-4x
B/J 10. x^3-4x^2+2

A. Quadratic Monomial
B. Cubic Trinomial
C. Quartic Monomial
D. 6^{th} degree Binomial
E. Quadratic Binomial
F. Constant Monomial
G. Linear Monomial
H. Cubic Binomial
I. Quintic Monomial
J. Cubic Trinomial

Answer Key

1.C 2.F 3.A 4.D 5.B 6.I 7.G 8.E 9.H 10.J

Subtracting Polynomials Practice:

- 1. $(6x^2-5x) - (4x^2-3x-4)$

A) $10x^2+2x-4$
B) $2x^2-8x-4$
C) $2x^2+8x+4$
(D) $2x^2-2x+4$

$$\begin{array}{r} 6x^2-5x+0 \\ -(4x^2-3x-4) \\ \hline 2x^2-2x+4 \end{array}$$

- 2. $(4a^2+2a+14) - (3a^2+6a+11)$

A) a^2+4a-3
B) $7a^2+8a+3$
C) $7a^2+8a+25$
(D) a^2-4a+3

$$\begin{array}{r} 4a^2+2a+14 \\ -(3a^2+6a+11) \\ \hline a^2-4a+3 \end{array}$$

- 3. $(3y^2+5y-8) - (7y^2+4y-4)$

(A) $-4y^2+y-4$
B) $10y^2+y+12$
C) $10y^2-y-4$
D) $10y^2+y-4$

$$\begin{array}{r} 3y^2+5y-8 \\ -(7y^2+4y-4) \\ \hline -4y^2+y-4 \end{array}$$

- 4. $(5x^2-4x+6) - (5x-2)$

$$\begin{array}{r} 5x^2-4x+6 \\ -(0x^2+5x-2) \\ \hline 5x^2-9x+8 \end{array}$$

A) $5x^2+9x-8$
B) $5x^2-9x+8$
C) $5x^2+9x+8$
D) $4x+4$

- 5. $(2x^2-11x+7) - (2x^2+11x-7)$

A) $-22x+14$
B) $4x^2$
C) $22x$
D) $22x-14$

$$\begin{array}{r} 2x^2-11x+7 \\ -(2x^2+11x-7) \\ \hline -22x+14 \end{array}$$

- 6. $(6m^2+3) - (m-5)$

A) $6m^2+3m-5$
B) $6m^2+m-8$
C) $6m^2-m+8$
D) $5m-2$

$$\begin{array}{r} 6m^2+0m+3 \\ -(0m^2+1m-5) \\ \hline 6m^2-m+8 \end{array}$$

- 7. $(5y^2+15y) - (3y^2-16)$

A) $2y^2+15y+16$
B) $2y^2+18y-16$
C) $2y^2-15y-16$
D) $2y^2-15y+16$

$$\begin{array}{r} 5y^2+15y+0 \\ -(3y^2+0y-16) \\ \hline 2y^2+15y+16 \end{array}$$

- 8. $(m^2-m+1) - (1/2m^2+ 1/2m)$

A) m^2-m+1
B) $1.5m^2+1.5m+1.5$
C) $1/2m^2+3/2m-1$
D) $1/2m^2-3/2m+1$

$$\begin{array}{r} m^2-m+1 \\ -(\frac{1}{2}m^2+\frac{1}{2}m+0) \\ \hline -\frac{1}{2}m^2-1\frac{1}{2}m+1 \end{array}$$

- 9. $(a^2+1/2a+1) - (a^2-a/2-1)$

A) $2a^2$
B) $2a^2+a+2$
C) $a+2$
D) $a+1$

$$\begin{array}{r} a^2+\frac{1}{2}a+1 \\ -(a^2-\frac{1}{2}a-1) \\ \hline a+2 \end{array}$$

- 10. $(x^2+3) - (0.5x-2)$

A) $1.5x^2-x-5$
B) $0.5x+5$
C) $x^2-0.5x+5$
D) $0.5x+1$

$$\begin{array}{r} x^2+3 \\ -(0.5x-2) \\ \hline x^2-0.5x+5 \end{array}$$

Answer Key

1.D 2.D 3.A 4.B 5.A 6.C 7.A 8.D 9.C 10.C

Multiplying Polynomials Practice: Scroll down to see work for these.

I 1. $(4x + 2)(6x^2 - x + 2)$
B 2. $(5x + 6)(5x - 5)$
J 3. $(6x + 3)(6x - 4)$
C 4. $(6x + 5)(5x + 5)$
A 5. $(6x + 8)(5x - 8)$
F 6. $(7x - 6)(5x + 6)$
H 7. $(8x + 1)(6x - 3)$
D 8. $(8x - 2)(6x + 2)$
G 9. $(x^2 + 6x - 4)(2x - 4)$
E 10. $(x - 3)(6x - 2)$

A. $30x^2 - 8x - 64$
B. $25x^2 + 5x - 30$
C. $30x^2 + 55x + 25$
D. $48x^2 + 4x - 4$
E. $6x^2 - 20x + 6$
F. $35x^2 + 12x - 36$
G. $2x^3 + 8x^2 - 32x + 16$
H. $48x^2 - 18x - 3$
I. $24x^3 + 8x^2 + 6x + 4$
J. $36x^2 - 6x - 12$

Answer Key

1.I 2.B 3.J 4.C 5.A 6.F 7.H 8.D 9.G 10.E

Application to Geometry Practice:

1. Simplify each expression below.

a. $7f(3f^2 - 5) + 6(f^3 - 5f^2 + 11)$

$21f^3 - 35f + 6f^3 - 30f^2 + 66$

$27f^3 - 30f^2 - 35f + 66$

b. $(11y^2 + y - 6) - 2(3y^2 - 4y - 3)$

$11y^2 + y - 6 - 6y^2 + 8y + 6$

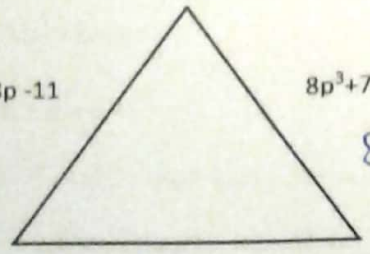
$5y^2 + 9y$

c. $6a(7a^4 - 3a) - 2a^2(4a^3 - a^2 + 11)$

$42a^5 - 18a^2 - 8a^5 + 2a^4 - 22a^2$

$34a^5 + 2a^4 - 40a^2$

2. The perimeter of triangle to the left is $14p^3 - 5p^2 + 2p$. Find the length of the missing side length.



$8p^3 + 7p + 3 + 6p^2 - 8p - 11$

$8p^3 + 6p^2 - p - 8$

$14p^3 - 5p^2 + 2p - (8p^3 + 6p^2 - p - 8)$

$6p^3 - 11p^2 + 3p + 8$

3. Show how to arrange the polynomial $7a^2b - a - 5b - a^2b + 2a + 4b$ so the powers of a are in descending order.

Simplify: $6a^2b + a - b$

$6a^2b + a - b$

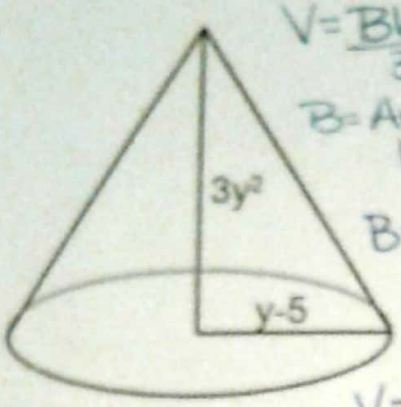
4. Show how to arrange the polynomial $6a^3x - 2a^2x^4 + 8ax^2 - 4a^3x^3 + 11a - 10$ so the powers of x are in descending order.

Simplify: No like terms

$-2a^2x^4 - 4a^3x^3 + 8ax^2 + 6a^3x + 11a - 10$

5. Find the volume of the shapes below:

a.



$V = \frac{Bh}{3}$

B = Area of the base

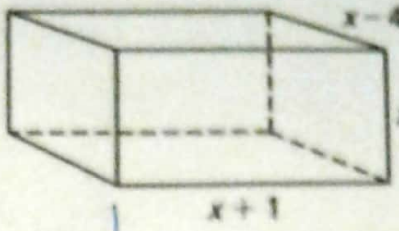
$B = \pi(y-5)^2$

$= \pi(y^2 - 10y + 25)$

$V = \frac{3\pi y^2(y^2 - 10y + 25)}{3}$

$V = \pi y^4 - 10\pi y^3 + 25\pi y^2$

b.



$V = Lwh$

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

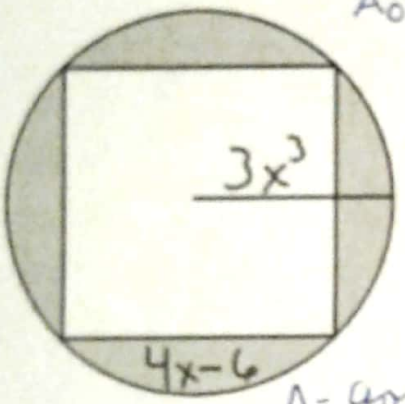
$V = (x^2 - 8x + 16)(x+1)$

$= x^3 - 8x^2 + 16x + x^2 - 8x + 16$

$= x^3 - 7x^2 + 8x + 16$

6. Find the area of each shaded region:

a.



$A_O = \pi(3x^3)^2$

$= \pi(9x^6)$

$= 9\pi x^6$

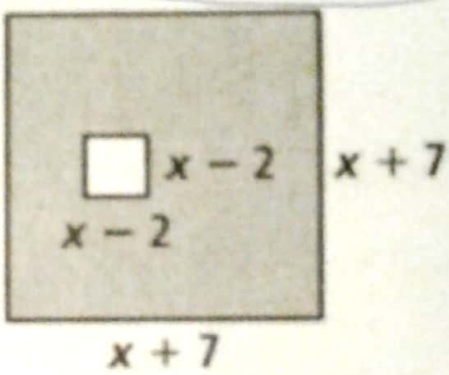
$A_\square = (4x-6)^2$

$= 16x^2 - 48x + 36$

$A = 9\pi x^6 - (16x^2 - 48x + 36)$

$= 9\pi x^6 - 16x^2 + 48x - 36$

b.



Big Square

$A = (x+7)^2$

$= x^2 + 14x + 49$

Small Square

$A = (x-2)^2$

$= x^2 - 4x + 4$

$A = x^2 + 14x + 49$

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

$18x + 45$

Answers

1a. $27f^3 - 30f^2 - 35f + 66$

1b. $5y^2 + 9y$

1c. $34a^3 + 2a^4 - 40a^2$

2. $6p^3 - 11p^2 + 3p + 8$

3. $6a^2b + a - b$

4. $-2a^2x^4 - 4a^3x^3 + 8ax^2 + 6a^3x + 11a - 10$

5a. $\pi y^4 - 10\pi y^3 + 25\pi y^2$

5b. $x^3 - 7x^2 + 8x + 16$

6a. $9\pi^6 - 16x^2 + 48x - 36$

6b. $18x + 45$

Multiplying Polynomials Practice:

1. $(4x+2)(6x^2-x+2)$ $24x^3-4x^2+8x+12x^2-2x+4$
$24x^3+8x^2+6x+4$

2. $(5x+6)(5x-5)$ $25x^2-25x+30x-30$
$25x^2+5x-30$

3. $(6x+3)(6x-4)$ $36x^2-24x+18x-12$
$36x^2-6x-12$

4. $(6x+5)(5x+5)$ $30x^2+30x+25x+25$
$30x^2+55x+25$

5. $(6x+8)(5x-8)$ $30x^2-48x+40x-64$
$30x^2-8x-64$

6. $(7x-6)(5x+6)$ $35x^2+42x-30x-36$
$35x^2+12x-36$

7. $(8x+1)(6x-3)$ $48x^2-24x+6x-3$
$48x^2-18x-3$

8. $(8x-2)(6x+2)$ $48x^2+16x-12x-4$
$48x^2+4x-4$

9. $(x^2+6x-4)(2x-4)$ $2x^3-4x^2+12x^2-24x-8x+16$
$2x^3+8x^2-32x+16$

10. $(x-3)(6x-2)$ $6x^2-2x-18x+6$
$6x^2-20x+6$