

Adding/Subtracting Polynomials Practice

Date _____

Period _____

Simplify each expression.

1) $(2x^2 - 8x^4) - (4x^2 - 8)$

$$\begin{array}{r} 2x^2 - 8x^4 \\ -4x^2 \quad +8 \\ \hline -2x^2 - 8x^4 + 8 \\ \boxed{-8x^4 - 2x^2 + 8} \end{array}$$

3) $(4x^4 + 6x^3) + (6x^3 + 8x^4)$

$$\begin{array}{r} 4x^4 + 6x^3 \\ +8x^4 + 6x^3 \\ \hline \boxed{12x^4 + 12x^3} \end{array}$$

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

$$\begin{array}{r} 6k^2 - 7k^3 \\ -4k^2 + 7k^3 - k \\ \hline \boxed{2k^2 - k} \end{array}$$

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

$$\begin{array}{r} 6x^4 - 4x + x^2 \\ -8x^4 + 2x - 2x^2 \\ \hline -2x^4 - 2x - x^2 \\ \boxed{-2x^4 - x^2 - 2x} \end{array}$$

9) $(8x^4 - 8 - 5x) + (5 - 5x^3 - 2x^4)$

$$\begin{array}{r} 8x^4 - 8 - 5x \\ -2x^4 + 5 - 5x^3 \\ \hline 6x^4 - 3 - 5x - 5x^3 \\ \boxed{6x^4 - 5x^3 - 5x - 3} \end{array}$$

10) $(8 - 3x + 5x^3) + (8x^4 - 8x^3 - 6) - (8x + 3x^4 - 5)$

$$\begin{array}{r} 5x^3 - 3x + 8 \\ 8x^4 - 8x^3 - 6 \\ -3x^4 - 8x + 5 \\ \hline \boxed{5x^4 - 3x^3 - 11x + 7} \end{array}$$

11) $(4a^4 + 4a^2 - 5a) + (2 + a^2 + a) - (6a - 5a^3 + 8a^4)$

$$\begin{array}{r} 4a^4 + 4a^2 - 5a \\ +a^2 + a + 2 \\ -8a^4 + 5a^3 - 6a \\ \hline \boxed{-4a^4 + 5a^3 + 5a^2 - 10a + 2} \end{array}$$

2) $(3 - 3b^4) + (8b^4 + 7b^2)$

$$\begin{array}{r} -3b^4 + 3 \\ +8b^4 + 7b^2 \\ \hline \boxed{5b^4 + 7b^2 + 3} \end{array}$$

4) $(6n^4 - 8) - (7 - 5n^4 - 7n^3)$

$$\begin{array}{r} 6n^4 - 8 \\ +5n^4 + 7n^3 - 7 \\ \hline \boxed{11n^4 + 7n^3 - 15} \end{array}$$

6) $(5x^3 + x) + (x - 3x^3 - 3)$

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

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

$$\begin{array}{r} 5a^4 - 6a + 7 \\ -2a^4 - 8a^3 - 8 \\ \hline \boxed{3a^4 - 8a^3 - 6a - 1} \end{array}$$

$$12) (3n^3 + 6n^4 + 2) + (5n^4 + n^3 + 4) + (7 + 8n^3 - n^4)$$

$$\begin{array}{r} 6n^4 + 3n^3 + 2 \\ 5n^4 + n^3 + 4 \\ -n^4 + 8n^3 + 7 \\ \hline 10n^4 + 12n^3 + 13 \end{array}$$

$$13) (3n^3 + n^2 - 4 + 5n^4) - (2n^3 - 8n^2 - 6 + 4n^4)$$

$$\begin{array}{r} 5n^4 + 3n^3 + n^2 - 4 \\ -4n^4 - 2n^3 - 8n^2 + 6 \\ \hline n^4 + n^3 + 9n^2 + 2 \end{array}$$

$$14) (2n^2 - 3 - 3n^3 + n) + (n^3 + 1 - 7n^2 - 6n^4)$$

$$\begin{array}{r} -3n^3 + 2n^2 + n - 3 \\ -6n^4 - n^3 - 7n^2 + 1 \\ \hline -6n^4 - 2n^3 - 5n^2 + n - 2 \end{array}$$

$$15) (2x^4 - 5x^2 - 8x^3 - 8) + (8x^4 - 6 - 2x^3 - 3x^2)$$

$$\begin{array}{r} 2x^4 - 8x^3 - 5x^2 - 8 \\ 8x^4 - 2x^3 - 3x^2 - 6 \\ \hline 10x^4 - 10x^3 - 8x^2 - 14 \end{array}$$

$$16) (6 - 6a - 8a^2 + 4a^3) + (6a^2 - 2a^3 - 7a - 8) + (3a^3 - 8 + a^2 - a)$$

$$\begin{array}{r} 4a^3 - 8a^2 - 6a + 6 \\ -2a^3 + 6a^2 - 7a - 8 \\ +3a^3 + a^2 - a - 8 \\ \hline 5a^3 - a^2 - 14a - 10 \end{array}$$

$$17) (4x^4 + 2 - 4x + x^2) - (7x^2 - 5x + 4x^3 - 7x^4) - (4x - 4 - 3x^4 + 6x^2)$$

$$\begin{array}{r} 4x^4 + x^2 - 4x + 2 \\ +7x^4 - 4x^3 - 7x^2 + 5x \\ +3x^4 - 6x^2 - 4x + 4 \\ \hline 14x^4 - 4x^3 - 12x^2 - 3x + 6 \end{array}$$

$$18) (2 + 7n - 8n^3 - 2n^2) + (8n^2 + 8n^3 - 2 - 4n) - (6 + n^2 - 2n + 3n^3)$$

$$\begin{array}{r} -8n^3 - 2n^2 + 7n + 2 \\ +8n^3 + 8n^2 - 4n - 2 \\ -3n^3 - n^2 + 2n - 6 \\ \hline -3n^3 + 5n^2 + 5n - 6 \end{array}$$

Fall Break - GCF Factoring Review

Date _____ Period _____

Factor the common factor out of each expression.

1) $\frac{6m^2 - 36}{m^2 - 6}$

$$6(m^2 - 6)$$

6) $\frac{60k^5 - 18k^4}{10k - 3}$

$$6k^4(10k - 3)$$

5) $\frac{50r^9 + 80r^2}{5r^7 + 8}$

$$10r^2(5r^7 + 8)$$

7) $\frac{-15k^5 + 30k^3 - 25k^2}{3k^3 - 6k + 5} - 5k^2$

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

9) $\frac{15p^8 + 5p^2 + 25p}{3p^7 + p + 5} 5p$

$$5p(3p^7 + p + 5)$$

11) $\frac{-16n^3 - 32n^2 + 28n}{4n^2 + 8n - 7} - 4n$

$$-4n(4n^2 + 8n - 7)$$

13) $\frac{24a^2 + 21a + 27}{8a^2 + 7a + 9} 3$

$$3(8a^2 + 7a + 9)$$

15) $\frac{30n^5 + 6n^4 + 15n}{10n^4 + 2n^3 - 5} 3n$

$$3n(10n^4 + 2n^3 - 5)$$

17) $\frac{-40m^5 + 32n^3 + 16}{5m^4 - 4n^2 - 2} - 8$

$$-8(5m^4 - 4n^2 - 2)$$

19) $\frac{6x^2 + 21x + 27y^2}{2x^2 + 7x + 9y^2} 3$

$$3(2x^2 + 7x + 9y^2)$$

2) $\frac{20a + 10}{2a + 1} 10$

$$10(2a + 1)$$

4) $\frac{63 - 90x}{-7 + 10x} - 9$

$$-9(10x - 7)$$

6) $\frac{6x^5 + 10x^4 + 3x^3}{10x^2 + 10x + 3} x^3$

$$x^3(6x^2 + 10x + 3)$$

8) $\frac{-12n^5 + 18n^3 - 48n^2}{2n^3 - 3n + 8} - 6n^2$

$$6n^2(2n^3 - 3n + 8)$$

10) $\frac{2x^2 + 4x + 6}{x^2 + 2x + 3} 2$

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

12) $\frac{-4x^2 + 2x + 16}{2x^2 - x - 8} - 2$

$$-2(2x^2 - x - 8)$$

14) $\frac{-20x^5 - 50x^4 + 10x^3}{2x^2 + 5x - 1} - 10x^3$

$$-10x^3(2x^2 + 5x - 1)$$

16) $\frac{21a^2b^8 + 14a^3 + 28}{3a^2b^8 + 2a^3 + 4} 7$

$$7(3a^2b^8 + 2a^3 + 4)$$

18) $\frac{24b^9a + 48ba^5 + 64b}{3b^8a + 6a^5 + 8} 8b$

$$8b(3b^8a + 6a^5 + 8)$$

20) $\frac{-10y + 35y^3x - 20yx^2}{-2 + 7y^2x - 4x^2} 5y$

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

Assignment

Date _____ Period _____

Factor each completely.

1) $x^2 - 16x + 63$

$$\begin{array}{r} \cancel{63} / -7 \\ -9 \end{array} \quad \begin{array}{r} -9 \\ 1 \end{array} \quad \begin{array}{r} -7 \\ 1 \end{array}$$

$$(x-9)(x-7)$$

3) $n^2 - 17n + 70$

$$\begin{array}{r} \cancel{70} / -7 \\ -10 \end{array} \quad \begin{array}{r} -10 \\ 1 \end{array} \quad \begin{array}{r} -7 \\ 1 \end{array}$$

$$(x-10)(x-7)$$

5) $n^2 - 10n + 9$

$$\begin{array}{r} \cancel{9} / -9 \\ -1 \end{array} \quad \begin{array}{r} -1 \\ 1 \end{array} \quad \begin{array}{r} -9 \\ 1 \end{array}$$

$$(x-1)(x-9)$$

7) $n^2 - 4n + 3$

$$\begin{array}{r} \cancel{3} / -3 \\ -1 \end{array} \quad \begin{array}{r} -1 \\ 1 \end{array} \quad \begin{array}{r} -3 \\ 1 \end{array}$$

$$(x-1)(x-3)$$

9) $x^2 + 4x + 3$

$$\begin{array}{r} \cancel{3} / 3 \\ 1 \end{array} \quad \begin{array}{r} 1 \\ 1 \end{array} \quad \begin{array}{r} 3 \\ 1 \end{array}$$

$$(x+1)(x+3)$$

11) $7v^2 + 71v + 72$

$$\begin{array}{r} \cancel{504} / 63 \\ 8 \end{array} \quad \begin{array}{r} 8 \\ 7 \end{array} \quad \begin{array}{r} 63 \\ 7 \end{array}$$

$$(7x+8)(x+9)$$

13) $5n^2 + 9n$

$$\begin{array}{r} \cancel{0} / 9 \\ 0 \end{array} \quad \begin{array}{r} 0 \\ 5 \end{array} \quad \begin{array}{r} 9 \\ 5 \end{array}$$

$$x(5x+9)$$

15) $5x^2 - 23x - 10$

$$\begin{array}{r} \cancel{-50} / 2 \\ -25 \end{array} \quad \begin{array}{r} -25 \div 5 \\ 5 \end{array} \quad \begin{array}{r} 2 \\ 5 \end{array}$$

$$(x-5)(5x+2)$$

17) $2a^2 - 9a$

$$\begin{array}{r} \cancel{0} / -9 \\ 0 \end{array} \quad \begin{array}{r} 0 \div 10 \\ 2 \end{array} \quad \begin{array}{r} -9 \\ 2 \end{array}$$

$$x(2x-9)$$

19) $25x^2 + 95x + 90$

$$5(5x^2 + 19x + 18)$$

$$\begin{array}{r} \cancel{90} / 9 \\ 10 \end{array} \quad \begin{array}{r} 10 \div 2 \\ 5 \end{array} \quad \begin{array}{r} 9 \\ 5 \end{array}$$

$$5(x+2)(5x+9)$$

2) $m^2 + 3m - 40$

$$\begin{array}{r} \cancel{-40} / -5 \\ 8 \end{array} \quad \begin{array}{r} 8 \\ 1 \end{array} \quad \begin{array}{r} -5 \\ 1 \end{array}$$

$$(x+8)(x-5)$$

4) $b^2 - 11b + 10$

$$\begin{array}{r} \cancel{10} / -10 \\ -1 \end{array} \quad \begin{array}{r} -1 \\ 1 \end{array} \quad \begin{array}{r} -10 \\ 1 \end{array}$$

$$(x-1)(x-10)$$

6) $p^2 + 15p + 50$

$$\begin{array}{r} \cancel{50} / 10 \\ 5 \end{array} \quad \begin{array}{r} 5 \\ 1 \end{array} \quad \begin{array}{r} 10 \\ 1 \end{array}$$

$$(x+5)(x+10)$$

8) $a^2 + a - 90$

$$\begin{array}{r} \cancel{-90} / -9 \\ 10 \end{array} \quad \begin{array}{r} 10 \\ 1 \end{array} \quad \begin{array}{r} -9 \\ 1 \end{array}$$

$$(x+10)(x-9)$$

10) $x^2 - 7x + 6$

$$\begin{array}{r} \cancel{6} / -6 \\ -1 \end{array} \quad \begin{array}{r} -1 \\ 1 \end{array} \quad \begin{array}{r} -6 \\ 1 \end{array}$$

$$(x-1)(x-6)$$

12) $7n^2 + 15n - 18$

$$\begin{array}{r} \cancel{-126} / 21 \\ -6 \end{array} \quad \begin{array}{r} -6 \\ 7 \end{array} \quad \begin{array}{r} 21 \div 3 \\ 7 \end{array}$$

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

14) $3a^2 - a - 14$

$$\begin{array}{r} \cancel{-42} / 6 \\ -7 \end{array} \quad \begin{array}{r} -7 \\ 3 \end{array} \quad \begin{array}{r} 6 \div 2 \\ 3 \end{array}$$

$$(3x-7)(x+2)$$

16) $7n^2 + 57n - 54$

$$\begin{array}{r} \cancel{-378} / 63 \\ -6 \end{array} \quad \begin{array}{r} -6 \\ 7 \end{array} \quad \begin{array}{r} 63 \div 9 \\ 7 \end{array}$$

$$(7x-6)(x+9)$$

18) $15x^2 - 63x - 60$

$$3(5x^2 - 21x - 20)$$

$$\begin{array}{r} \cancel{-700} / -25 \\ 4 \end{array} \quad \begin{array}{r} 4 \\ 5 \end{array} \quad \begin{array}{r} -25 \div 5 \\ 5 \end{array}$$

$$3(5x+4)(x-5)$$

20) $5m^2 + 46m + 48$

$$\begin{array}{r} \cancel{240} / 40 \\ 6 \end{array} \quad \begin{array}{r} 6 \\ 5 \end{array} \quad \begin{array}{r} 40 \div 8 \\ 5 \end{array}$$

$$(5x+6)(x+8)$$