Timothy Christian School
Entering Geometry Summer Work

Name: _____

Adding/Subtracting/Multiplying/Dividing Fractions & Mixed Numbers

1) $\left(-\dfrac{1}{3}\right) + \dfrac{3}{8}$

2) $\dfrac{1}{3} - \left(-\dfrac{5}{3}\right)$

3) $\left(-\dfrac{10}{7}\right) + \dfrac{1}{6}$

4) $\dfrac{9}{5} + \left(\dfrac{4}{3}\right)$

5) $2 - \dfrac{13}{8}$

6) $2\dfrac{1}{3} + \left(-1\dfrac{2}{3}\right)$

7) $\left(-1\dfrac{7}{8}\right) + \left(-3\dfrac{1}{2}\right)$

8) $\left(-3\dfrac{5}{8}\right) - 4\dfrac{2}{5}$

9) $1\dfrac{2}{5} - \left(-3\dfrac{3}{4}\right)$

10) $2\dfrac{4}{5} - \dfrac{5}{8}$

11) $\dfrac{4}{9} \cdot \dfrac{7}{4}$

12) $-2 \cdot \dfrac{3}{7}$

13) $-1\dfrac{1}{4} \cdot 9$

14) $-1\dfrac{5}{7} \cdot -2\dfrac{1}{2}$

15) $-2\dfrac{3}{8} \cdot 2\dfrac{1}{2}$

16) $-\dfrac{1}{5} \div \dfrac{7}{4}$

17) $-\dfrac{1}{2} \div \dfrac{5}{4}$

18) $-2 \div -3\dfrac{4}{5}$

19) $1\dfrac{6}{7} \div 5\dfrac{3}{4}$

20) $-3\dfrac{7}{10} \div 2\dfrac{1}{4}$

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Adding/Subtracting/Multiplying/Dividing Positive/Negative Numbers

Solve each equation.

1) $(-11) - (-14) + 7$

2) $6 + (-7) + (-5) - (-2)$

3) $(-11) - 8 + 1 - (-6)$

4) $6 - 3.98$

5) $1.8 - (-3.7)$

6) $(-0.8) + (-7.2) - 5.4$

7) $\left(-\frac{3}{2}\right) + \frac{8}{5}$

8) $\frac{7}{4} - \left(-\frac{1}{2}\right)$

9) $\left(-\frac{1}{5}\right) + \frac{7}{4}$

10) $\frac{2}{5} - \frac{4}{5}$

11) $-\frac{20}{-2}$

12) $\frac{65}{5}$

13) $\frac{102}{-17}$

14) $153 \div 17$

15) $(-85) \div -17$

16) $-180 \div 15$

17) $12 \cdot -12$

18) $6 \cdot -5 \cdot 3$

19) $8 \cdot -6 \cdot -3$

20) $-5 \cdot -9$

21) $-3 \cdot 6 \cdot -6$

22) $(-3)(3)(-3)(-3)$

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Adding/Subtracting/Multiplying/Dividing with Decimals

Solve each equation.

1) $19.4 + 24.2$

2) $(14.8) - (9.7)$

3) $(-9.1) + 3.5$

4) $0.96 - 8.5$

5) $9.5 - (-19.3)$

6) $3.4 - (-12.1)$

7) $8.7 + 3.8 + 12.3$

8) $(-13.6) + 12 - (-15.5)$

9) $3.4 - 5 - 10.4$

10) $(5.6) - (-12.6) + (-6.6)$

11) -5.928×-11.6

12) $-7.5 \times 9 \times -8.3$

13) $-4.04 \times -9 \times 3$

14) $3.2 \times 8.7 \times -1.1$

15) $8.1 \times 8.6 \times -5.2$

16) $425.4 \div 0.5$

17) $6 \div 1.25$

18) $46.483 \div 0.2$

19) $56.24 \div 0.02$

20) $100.4 \div 0.25$

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Order of Operations

Evaluate each expression.

1) $(6 - 4) \times 49 \div 7$

2) $\frac{43-1}{4+2} + 10$

3) $(8 + 5) \times \frac{35}{5} + 6$

4) $\frac{27}{2+3+4} + 3$

5) $\frac{45}{8(5-4)-3}$

6) $8 \times \frac{15}{5} - (5 + 9)$

7) $2 \times 7 - \frac{10}{9-4}$

8) $(10 + 2 - 2) \times 6 - 1$

9) $\frac{49}{7} \times \frac{60}{2\times5}$

10) $(2 + 6 \times 2 + 2 - 4) \times 2$

Least Common Multiple - Find the least common multiple of the three numbers.

1) $24, 11, 14$

2) $27, 23, 15$

3) $24, 14, 28$

4) $9, 13, 26$

5) $23, 13, 15$

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Greatest Common Factor - Find the greatest common factor of the three numbers.

1) $99, 11, 88$

4) $64, 48, 16$

2) $7, 28, 98$

5) $22, 77, 66$

3) $48, 87, 6$

Evaluating Expressions

Evaluate each expression using the given values.

1) $y + \frac{y-x}{2}$; $use\ x = 1, and\ y = 3$

2) $\frac{n-(m-m)}{5}$; $use\ m = 3, and\ n = 5$

3) $pq - (q + q)$; $use\ p = 5, and\ q = 5$

4) $x + y - \frac{x}{5}$; $use\ x = 5, and\ y = 3$

5) $n(6 - m) + m$; $use\ m = 2, and\ n = 5$

6) $6(x - y)$; $use\ x = 6, and\ y = 1$

7) $\dfrac{xy(5+y)}{6}$; $use\ x = 5, and\ y = 4$

8) $(x - z)(x + z) - y$; $use\ x = 6, y = 2, and\ z = 3$

9) $x^2(x + 4 - y)$; $use\ x = 3, and\ y = 3$

10) $a^2 - (b + a) - b$; $use\ a = 4, and\ b = 1$

Combining Like Terms

1) $n - 4 - 9$

2) $-3x - 9 + 15x$

3) $-16n - 14n$

4) $-4 + 7(1 - 3m)$

5) $-2n - (9 - 10n)$

6) $9a + 10(6a - 1)$

7) $-10(1 - 9x) + 6(x - 10)$

8) $5(-2n + 4) + 2(n + 3)$

9) $-3(10b + 10) + 5(b + 2)$

10) $-7(n + 3) - 8(1 + 8n)$

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Multiply Polynomials

Find each product.

1) $6v(2v + 3)$

2) $7(-5v - 8)$

3) $2x(-2x - 3)$

4) $-4(y + 1)$

5) $(2n + 2)(6n + 1)$

6) $(4n + 1)(2n + 6)$

7) $(x - 3)(6x - 2)$

8) $(8p = 2)(6p + 2)$

9) $(6p + 8)(5p - 8)$

10) $(2a - 1)(8a -$

Two-Step Equations

Solve each equation.

1) $-6 + \dfrac{x}{4} = -5$

2) $0 = 4 + \dfrac{n}{5}$

3) $-1 = \dfrac{5+x}{6}$

4) $2(n + 5) = -2$

5) $-6 = \dfrac{n}{2} - 10$

6) $144 = -12(x + 5)$

7) $10 - 6v = -104$

8) $-9x - 13 = -103$

9) $-10 = -10 + 7m$

11) $7(9 + k) = 84$

10) $\dfrac{m}{9} - 1 = -2$

12) $-243 = -9(10 + x)$

Properties of Exponents

Simplify.

1) $2m^2 \cdot 2m^3$

7) $\dfrac{m^4}{2m^4}$

2) $4r^{-3} \cdot 2r^2$

8) $\dfrac{2x^4 y^{-4} z^{-3}}{3x^2 y^{-3} z^4}$

3) $2k^4 \cdot 4k$

9) $\dfrac{2h^3 j^{-3} k^4}{3jk}$

4) $4a^3 b^2 \cdot 3a^{-4} b^{-3}$

10) $\dfrac{3x^3 y^{-1} z^{-1}}{x^{-4} y^0 z^0}$

5) $(x^2)^0$

6) $(2x^2)^{-4}$

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Exponents and Multiplication - Simplify

1) $2n^4 \cdot 5n^4$

2) $2 \cdot 2^2 \cdot 2^2$

3) $4x^2 \cdot 3x$

4) $7v^3 \cdot 10u^3v^5 \cdot 8uv^3$

5) $9xy^2 \cdot 9x^5y^2$

6) $6x^2 \cdot 6x^3y^4$

7) $7u^2v^5 \cdot 9uv^3$

8) $10xy^3 \cdot 8x^5y^3$

9) $(2x^2)^2$

10) $(7k)^2$

Exponents and Division - Simplify

1) $\dfrac{3}{3^3}$

2) $\dfrac{2^4}{2^2}$

3) $\dfrac{3r^3}{2r}$

4) $\dfrac{10p^4}{6p}$

5) $\dfrac{3b}{10b^3}$

6) $\dfrac{2n^2}{n}$

7) $\dfrac{14x^4y^7}{6x^5y^4}$

8) $\dfrac{4y^4}{14yx^8}$

9) $\dfrac{5n^8}{20n^8}$

10) $\dfrac{16yx^4}{9x^8y^2}$

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Negative Exponents - Simplify

1) $2n^{-2} \cdot n^{-3}$

6) $a^2 a^{-3}$

2) $4r^4 \cdot 4r^4$

7) $2n \cdot 2n^0$

3) $4x \cdot 2x^0 \cdot 4x^{-3}$

8) $2x^{-3} \cdot 2x^4$

4) $4n^3 \cdot n^4$

9) $2v^{-2} \cdot 3v^4$

10) $3a^2 \cdot 2a^2$

5) $2m^0 \cdot m^4$

Function Tables – Complete the function tables.

z	$z^2(z+3)$
-2	
-1	
-3	
1	
2	

v	$v^2 - 10$
5	
-8	
6	
-10	
4	

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c	$\dfrac{c}{4} - 2$
24	
36	
12	
80	
8	

b	$(b + 5)(b + 2)$

q	$2q + 1$

n	$\dfrac{16}{n + 1}$
7	
0	
3	
15	
1	

Solving Systems by Substitution

1) $y = 6x - 11$
   $-2x - 3y = -7$

2) $2x - 3y = -1$
   $y = x - 1$

3) $y = -3x + 5$
   $5x - 4y = -3$

4) $y = -2$
   $4x - 3y = 18$

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5) $-4x + y = 6$
   $-5x - y = 21$

8) $-5x + y = -3$
   $3x - 8y = 24$

6) $-7x - 2y = -13$
   $x - 2y = 11$

9) $x + 3y = 1$
   $-3x - 3y = -15$

7) $-5x + y = -2$
   $-3x + 6y = -12$

10) $6x + 6y = -6$
    $5x + y = -13$

Solving Systems by Elimination

1) $-4x - 2y = -12$
   $4x + 8y = -24$

5) $7x + 2y = 24$
   $8x + 2y = 30$

2) $x - y = 11$
   $2x + y = 19$

6) $5x + y = 9$
   $10x - 7y = -18$

3) $-6x + 5y = 1$
   $6x + 4y = -10$

7) $-4x + 9y = 9$
   $x - 3y = -6$

4) $8x + y = -16$
   $-3x + y = -5$

8) $-3x + 7y = -16$
   $-9x + 5y = 16$

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Solving Quadratics by Factoring

1) $n^2 + 7n + 15 = 5$

2) $n^2 - 10n + 22 = -2$

3) $n^2 + 3n - 12 = 6$

4) $6n^2 - 18n - 18 = 6$

5) $7r^2 - 14r = -7$

6) $3r^2 - 16r - 7 = 5$

7) $6b^2 - 13b + 3 = -3$

8) $7k^2 - 6k + 3 = 3$

Solving Quadratics by Completing the Square

1) $x^2 - 5x = 8$

2) $x^2 - 6x = 9$

3) $3x^2 + 10x = -3$

4) $2x^2 + 5x = 10$

Solve Using the Quadratic Formula

1) $m^2 - 5m - 14 = 0$

2) $b^2 - 4b + 4 = 0$

3) $2m^2 + 2m - 12 = 0$

4) $2x^2 - 3x - 5 = 0$

5) $x^2 + 4x + 3 = 0$

6) $2x^2 + 3x - 20 = 0$