



TIMOTHY
CHRISTIAN SCHOOL

Entering Algebra 1 Summer Packet 2022

Please complete every problem and SHOW ALL WORK. No Work = No Credit. You may use a calculator on sections 4-10 but you still must show your work. Write your final answers on the answer sheet at the end of the packet. This assignment will be graded for both accuracy (75%) and completion (25%). The summer math packet is due on the first day you return to school. This packet will count as a test grade in the first marking period of the new school year.

This Packet has been designed to give a review of Pre-Algebra skills that are essential for student success in Algebra 1. The packet should be completed over the course of the summer and not in the last week before the new school year begins.

Suggested timeline for completing this packet.

Week of July 4 – Exercises #1 (No calculator)

Week of July 11 – Exercises #2 (No calculator)

Week of July 18 – Exercises #3 (No calculator)

Week of July 25 – Exercises #4, #5

Week of August 1 – Exercises #6

Week of August 8 – Exercises #7

Week of August 15 – Exercises #8

Week of August 22 – Exercises #9, #10

Exercise 1: Order of Operations

Evaluate each expression

1	$(6 - 4) \times 49 \div 7$	2	$7 + 10 \times 2$
3	$6(2 + 3)$	4	$9 - 32 \div 4$
5	$3(5 \cdot 9 + 5) \cdot 4$	6	$(13 - 4) \cdot (14 + 3)$
7	$(14 - 8) \div (4 - 2) + 7$	8	$3 \cdot (10 \cdot 2) \div 5$
9	$4 + (3 - 3)$	10	$10 - 12 \div 4 - 4$
11	$(1 + 5)(8 - 1)$	12	$8(5 \cdot 3 - 9)$
13	$(15 - 9) \div (9 - 3)$	14	$(4^2 - 2) \cdot 7$

Exercise 2: Multiplying and Dividing Positive and Negative Numbers

- Two integers with DIFFERENT signs, the answer is NEGATIVE
- Two integers with SAME signs, the answer is POSITIVE

1	$48 \div 6$	2	$-85 \div (-17)$
3	$9(-7)$	4	$9 * 10$
5	$12 \div (-3)$	6	$-180 \div 15$
7	$3(7)$	8	$7 \cdot (-2)$
9	$-6 \cdot 0$	10	$-122 \cdot (-1)$
11	$7(-7)$	12	$-5 \div (-1)$
13	$56 \div (-7)$	14	$-5 \cdot (-4)$
15	$-(-92)$	16	$63 \div -9$
17	$14 \cdot -2 \div -7$	18	$-4 \div -2 \cdot 5$
19	$-72 \div 9 \div 2$	20	$100 \div -25 \times 2$

Exercise 3: Adding and Subtracting Integers

ADDITION INTEGER RULES:

For integers with the same sign:

- The sum of two positive integers is POSITIVE
- The sum of two negative integers is NEGATIVE

For integers with different signs, subtract their absolute value. The sum is:

- Positive IF the positive integer has the greater absolute value.
- Negative IF the negative integer has the greater absolute value.

SUBTRACTION INTEGER RULES:

- Keep the first number the same
- Switch the subtraction sign to ADDITION
- Change the second number to its opposite.
- Follow Addition rules above.

1	$3 - 8$	2	$(-8) - (-2)$
3	$5 + 9$	4	$(-27) - 24$
5	$(-7) + 9$	6	$-4 + (-12)$
7	$2 - 10$	8	$-5 + 10$
9	$-7 + (-5)$	10	$-6 + 10$
11	$-12 + 7$	12	$(-10) + (-7)$

13	$3 + 4$	14	$(-30) + 10$
15	$2 - (-2)$	16	$(-8) - (-6)$
17	$-1 - 10$	18	$8 - 7$
19	$(-10) - 47$	20	$(-12) + (-11)$

Exercise 4: One-Step Equations with Integers

Reminder: equations must always remain balanced.

- If you add or subtract the same number from each side of an equation, the two sides remain equal.
- If you multiply or divide the same number from each side of an equation, the two sides remain equal.

Example: $t + 15 = 60$
 $\quad -15 \quad -15$
 $t = 45$

*think: What operation is happening to t?
addition – to undo you must subtract 15
from both sides.*

Goal: Get the variable alone

1	$-40 = -5p$	2	$\frac{x}{5} = 2$
3	$-19 = b - 6$	4	$\frac{x}{2} = 11$

5	$k + 1 = -27$	6	$n - 4.7 = -4.7$
7	$x - 4 = 1$	8	$y + 3 = 9$
9	$3g = 15$	10	$\frac{r}{2} = 9$
11	$x + 5 = 6$	12	$4v = 20$
13	$\frac{h}{5} = 1$	14	$x - 17 = 38$
15	$t + 8 = 16$	16	$7w = 14$

Exercise 5: Fraction Practice

- To add or subtract unlike fractions, rename the fractions so there is a common denominator. Then simplify.
- To multiply fractions, multiply the numerators and multiply the denominators. Then simplify.
- To divide fractions, Keep the first fraction, Flip the second fraction, Change the sign to a multiplication sign. (KFC) or remember "When I divide fractions, I don't cry – I flip the second and multiply" Then simplify.

1	$\frac{1}{3} + \frac{1}{9}$	2	$\frac{5}{7} + \frac{9}{7}$
3	$\frac{9}{10} - \frac{1}{10}$	4	$\frac{2}{3} - \frac{1}{6}$
5	$\frac{4}{5} \cdot \frac{5}{4}$	6	$\frac{10}{50} \cdot \frac{2}{1}$
7	$\frac{1}{3} \div \frac{6}{2}$	8	$\frac{4}{7} \div \frac{1}{2}$
9	$\frac{15}{30} \cdot \frac{2}{1}$	10	$\frac{2}{7} + \frac{4}{14}$
11	$\frac{6}{9} - \frac{10}{18}$	12	$\frac{5}{6} \cdot \frac{4}{3}$

Exercise 6: Like and Unlike Terms

- “like” terms are terms that have the same variable to the same power
- “unlike” terms are terms that do not have the same variable to the same power

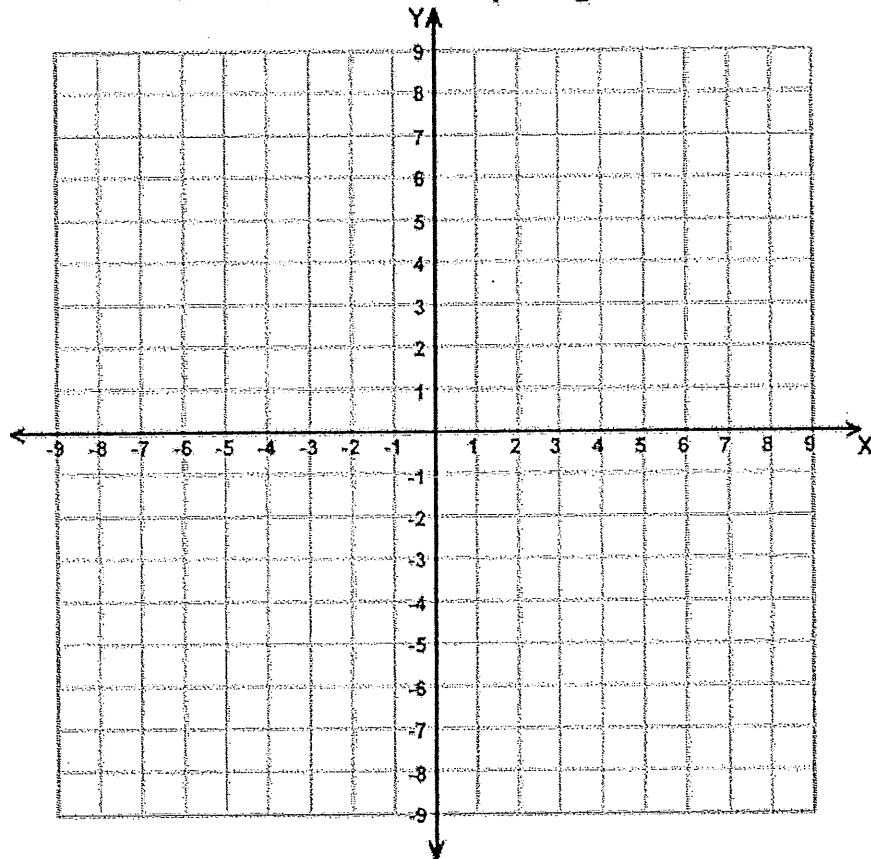
Like Terms	Unlike Terms
4y and 17y	4 and 4y
7 and 21	7p and p^3
$15y^2$ and $-24y^2$	143 and 142x
7xy and 81xy	$8x^2y$ and 17xy

Circle the “like” terms in the set, if there are any

1	7y, 9, -14y	2	$6x^2$, $7x^2$, $-9x^2$
3	9, 18w, 27w	4	7t, 9t, $5t^2$
5	10g, g, 10	6	4h, 10, 6
7	qc, 5qc, $5q^2c$	8	9y, y, 10y
9	$41r^2$, 50r, $15r^2$	10	117n, 117, n^2
11	67m, 5m, 51mn	12	1738, 1738r, $1738r^2$

Exercise 7: Graphing Ordered Pairs on a Coordinate Plane

Four Quadrant Graphing Puzzle



Connect each sequence of points with a line.

- $(-1, 1)$, $(-1, 2)$, $(0, 3)$, $(-2, 5)$, $(-1, 6)$, $(-2, 7)$, $(-1, 9)$
- $(-4, 7)$, $(-5, 3)$, $(-6, 2)$, $(-2, 1)$, $(-1, 1)$ End of Sequence
- $(-1, -1)$, $(-2, -1)$, $(-6, -2)$, $(-5, -3)$, $(-4, -7)$, $(-1, -9)$, $(-2, -7)$
- $(-1, -6)$, $(-2, -5)$, $(0, -3)$, $(-1, -2)$, $(-1, -1)$ End of Sequence
- $(-5, 0)$, $(-4, -1)$, $(0, -1)$, $(2, -2)$, $(4, -2)$, $(2, 0)$, $(4, 2)$
- $(2, 2)$, $(0, 1)$, $(-4, 1)$, $(-5, 0)$ End of Sequence
- $(-4, -1)$, $(-6, -1)$, $(-5, 0)$, $(-6, 1)$, $(-4, 1)$ End of Sequence
- $(5, -3)$, $(4, -2)$, $(5, -2)$ End of Sequence
- $(5, 3)$, $(4, 2)$, $(5, 2)$ End of Sequence
- $(-4, 5)$ End of Sequence
- $(-4, -5)$ End of Sequence

What is the shape ?

***No need to recopy onto the answer key.

Math-Aids.Com
[http://www.math-](http://www.math-aids.com/cgi/pdf_viewer_4.cgi?script_name=graphing_four_ordered_puzzle.pl&skill=2&language=0&memo=&answer=1&x=131&y=30)

[aids.com/cgi/pdf_viewer_4.cgi?script_name=graphing_four_ordered_puzzle.pl&skill=2&language=0&memo=&answer=1&x=131&y=30](http://www.math-aids.com/cgi/pdf_viewer_4.cgi?script_name=graphing_four_ordered_puzzle.pl&skill=2&language=0&memo=&answer=1&x=131&y=30)

Exercise 8: Evaluating Expressions

- “plug in” the given values for each expression
- Evaluate the function, you should get a numerical value as an answer
- Don’t forget to utilize order of operations!

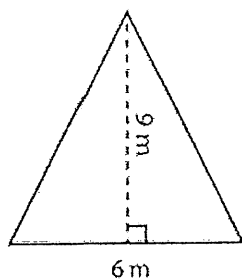
Evaluate each using the values given

1	$y \div 2 + x$; use $x = 1$ and $y = 2$	2	$a - 5 - b$; use $a = 10$ and $b = 4$
3	$p^2 + m$; use $m = 1$ and $p = 5$	4	$y + 9 - x$; use $x = 1$ and $y = 3$
5	$m + p \div 5$; use $m = 1$ and $p = 5$	6	$y^2 - x$; use $x = 7$ and $y = 7$
7	$z(x + y)$; use $x = 6, y = 8,$ $z = 6$	8	$x + y + y$; use $x = 9$ and $y = 10$
9	$p + 10 + m$; use $p = 9$ and $m = 3$	10	$6q + m - m$; use $m = 8$ and $q = 3$
11	$p \times m \div 4$; use $m = 4$ and $p = 4$	12	$(y + x) \div 2$; use $x = 1$ and $y = 1$

Exercise 9: Area

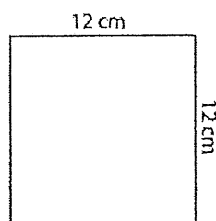
Area Formulas	
Rectangle $A = bh$	Triangle $A = \frac{1}{2}bh$
Parallelogram $A = bh$	Trapezoid $A = \frac{1}{2}(b_1 + b_2)h$
Where b = base h = height that is perpendicular from the base b_1 and b_2 are the two bases of a trapezoid	

1)



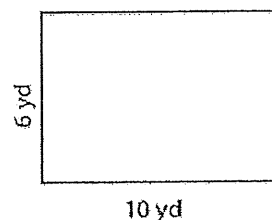
Area = _____

2)



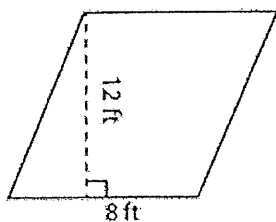
Area = _____

3)



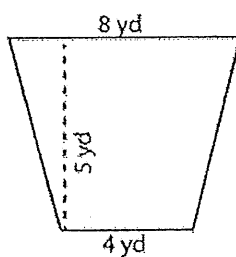
Area = _____

4)



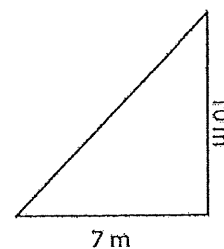
Area = _____

5)



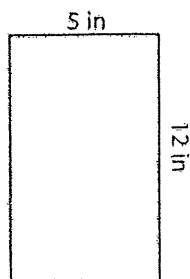
Area = _____

6)



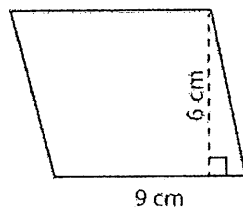
Area = _____

7)



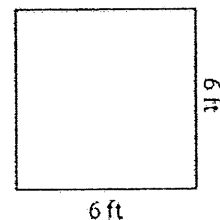
Area = _____

8)



Area = _____

9)



Area = _____

Exercise 10: Least Common Multiple and Greatest Common Factor

Least Common Multiple

- Write the multiples of all numbers shown
- Choose the SMALLEST multiple that all numbers have in common, that is your LCM

Greatest Common Factor

- Factor all numbers until the factors are prime
- Multiply the factors all numbers have in common
- The product of the prime factors is the GCF

LCM

1	49, 84	2	69, 12
3	6, 72	4	14, 25
5	84, 40	6	54, 16
7	9, 23	8	15, 90
9	36, 24	10	8, 54

GCF

1	35,45	2	78,52
3	24,84	4	80,60
5	77,11	6	36,90
7	81,63	8	55,75
9	39,42	10	90,60

Answer Sheet

Exercises #1

1.	2.	3.	4.
5.	6.	7.	8.
9.	10.	11.	12.
13.	14.		

Exercises #2

1.	2.	3.	4.
5.	6.	7.	8.
9.	10.	11.	12.
13.	14.	15.	16.
17.	18.	19.	20.

Exercises #3

1.	2.	3.	4.
5.	6.	7.	8.
9.	10.	11.	12.
13.	14.	15.	16.
17.	18.	19.	20.

Exercises #4

1.	2.	3.	4.
5.	6.	7.	8.
9.	10.	11.	12.
13.	14.	15.	16.

Exercises #5

1.	2.	3.	4.
5.	6.	7.	8.
9.	10.	11.	12.

Exercises #6

1	$7y, 9, -14y$	2	$6x^2, 7x^2, -9x^2$
3	$9, 18w, 27w$	4	$7t, 9t, 5t^2$
5	$10g, g, 10$	6	$4h, 10, 6$
7	$qc, 5qc, 5q^2c$	8	$9y, y, 10y$
9	$41r^2, 50r, 15r^2$	10	$117n, 117, n^2$
11	$67m, 5m, 51mn$	12	$1738, 1738r, 1738r^2$

Exercises #8

1.	2.	3.	4.
5.	6.	7.	8.
9.	10.	11.	12.

Exercises #9 – Don't forget UNITS!

1.	2.	3.
4.	5.	6.
7.	8.	9.

Exercises #10

LCM

1.	2.	3.	4.	5.
6.	7.	8.	9.	10.

GCF

1.	2.	3.	4.	5.
6.	7.	8.	9.	10.