

## Summer Packet: Pre-Algebra Honors

**Purpose:** This packet is designed to help students stay on track over the summer and enter Pre-Algebra confident and prepared for a great school year. Math teachers have selected 6 skills that are important for the students' success in Pre-Algebra. If a student struggles with these concepts, we highly recommend that they watch the instructional videos provided and review the notes provided. The instructional videos are available by scanning the QR code with a smart phone. The instructional videos are all through Khan Academy, a website that provides great instructional videos and practice for math concepts. After watching the video, students can choose to continue watching videos for extra help or work problems live on the site and get immediate feedback on whether their solution is correct. Watching videos and online practice is not required but may prove beneficial for students that often struggle in math or lose skills over the summer. All pages of this packet should be completed for the first day of school. **SHOW ALL WORK TO RECEIVE CREDIT.**

### Concept 1: Exponents and Order of Operations

Directions: Solve each problem showing all steps (your thoughts) and circle your answer. Simplify your answer when possible. NO CALCULATOR

1.  $8^2$

4.  $5 \cdot 9^2$

2.  $\frac{5(6^2 - 3)}{3^2 + 2}$

5.  $9^2 - 4^2$

3.  $21 - [2^4 - (7-5) - 10] + 8 \cdot 2$

6.  $\frac{4 \cdot 8 - 1 \cdot 11}{3(9 - 2^3)}$

## Concept 2: Variables, Algebraic Expressions, and Equations

Directions: Solve each problem showing all steps and circle your answer. Simplify your answer when possible. NO CALCULATOR

1. Evaluate when  $x=5$ ,  $y=0$ , and  $z=2$ .

$$x^3 - 2z$$

$$4x - 3$$

2. Translate each phrase into a variable expression. Use "x" to represent a number.

a. Five subtracted from a number

b. The product of five and a number

c. Seven more than a number

3. Decide whether a given number is the solution of a given equation. Prove your reasoning.

a. Is 5 a solution of  $n + 12 = 20 - 3$ ? Prove it.

b. Is 14 a solution of  $30 = 3(n-3)$ ? Prove it.

4. Solve the equation using inverse operations. Show your work, do NOT use a calculator.

a.  $7n = 77$

b.  $n - 25 = 150$

c.  $5(n+4) = 90$

### Concept 3: Adding, Subtracting, Multiplying, and Dividing with Integers

Directions: Solve each problem and show your work or thoughts.

1.  $-3 - 1$

2.  $-2 + 9$

3.  $125 - (-103)$

4.  $100 \div -5$

5.  $-7 \times -3 \times 2$

6.  $-144 \div -12 + 3$

7.  $(-6) + (-14) \times 2$

8.  $13 + 20 + (-17) + (-13)$

9.  $(-12) - (-11)$

10.  $(-126) \div 9 + 3$

### Concept 4: Simplifying and Solving Equations by combining like terms and using inverse operations.

Directions: Solve each problem showing all steps and circle your answer. Simplify your answer when possible. NO CALCULATOR

1. Simplify:  $8a + a - 7 - 15a$

2. Simplify:  $7x + 3(x - 4) + x$

3. Simplify:  $-(3m + 2) - m - 10$

4. Simplify:  $10 - x + 5x - 12 - 3x$

5. Solve:  $7y - 6y = 100 - 105$

6. Solve:  $7x + 5 - 6x = -20$

7. Solve:  $c - 5 = -13 + 7$

8. Solve:  $-14 = 9y + 4$

**Concept 5: Adding, subtracting, multiplying, and dividing with fractions**

Directions: Solve each problem showing all steps and circle your answer. Simplify your answer when possible. NO CALCULATOR

1.  $2\frac{1}{4} + \frac{3}{4} =$

4.  $3\frac{15}{20} \div \frac{4}{5} =$

2.  $2\frac{5}{8} - 1\frac{2}{4} =$

5.  $4\frac{1}{3} + 2\frac{2}{6} + \frac{4}{12} - \frac{3}{4} =$

3.  $\frac{11}{12} \times \frac{2}{4} =$

6.  $3\frac{1}{3} \times \frac{2}{6} \times \frac{4}{12} \div \frac{3}{4} =$

7.  $\frac{1}{4} + \frac{3}{24} + \frac{7}{8} - \frac{1}{2} =$

8.  $2\frac{3}{8} + \frac{2}{20} - 1\frac{1}{5} =$

**Concept 6: Adding, subtracting, multiplying, and dividing with decimals**

Directions: Solve each problem showing all steps and circle your answer. Simplify your answer when possible. NO CALCULATOR

1.  $4.2 \times 3.8 =$

6.  $\frac{16.8}{4.2} =$

2.  $3 - 1.78 =$

7.  $16.2 + 7.58 - 3.6 - 1.4 =$

3.  $4.82 \div 4 =$

8.  $5.5 \times 3 \times 2.5 \div 1.5 =$

4.  $4.3 + 2.6 + 3.72$

9.  $6.1 \times 4 + 2.6$

5.  $26 \div 3.2$

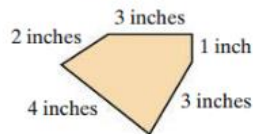
10.  $250 \div 12.5 + 7.3$

## Cumulative Review

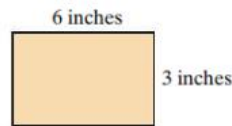
1. Write 308,063,557 in words.

2. Write 276,004 in words.

3. Find the perimeter of the polygon shown.



4. Find the perimeter of the rectangle shown.



5. Subtract:  $900 - 174$ . Check by adding.

6. Subtract:  $17,801 - 8216$ . Check by adding.

7. Round 248,982 to the nearest hundred.

8. Round 844,497 to the nearest thousand.

9. Multiply:  $25 \times 8$

10. Multiply:  $395 \times 74$

11. Divide and check:  $1872 \div 9$

12. Divide and check:  $3956 \div 46$

13. Simplify:  $2 \cdot 4 - 3 \div 3$

14. Simplify:  $8 \cdot 4 + 9 \div 3$

15. Evaluate  $x^2 + z - 3$  for  $x = 5$  and  $z = 4$ .

16. Evaluate  $2a^2 + 5 - c$  for  $a = 2$  and  $c = 3$ .

17. Determine which numbers in the set  $\{26, 40, 20\}$  are solutions of the equation  $2n - 30 = 10$ .

18. Insert  $<$  or  $>$  to make a true statement.

a.  $-14$                        $0$

b.  $-(-7)$                        $-8$

19. Add using a number line:  $5 + (-2)$

20. Add using a number line:  $-3 + (-4)$

*Add.*

21.  $-15 + (-10)$

22.  $3 + (-7)$

23.  $-2 + 25$

24.  $21 + 15 + (-19)$

*Subtract.*

25.  $-4 - 10$

26.  $-2 - 3$

27.  $6 - (-5)$

28.  $19 - (-10)$

29.  $-11 - (-7)$

30.  $-16 - (-13)$

*Divide.*

31.  $\frac{-12}{6}$

32.  $\frac{-30}{-5}$

33.  $-20 \div (-4)$

34.  $26 \div (-2)$

35.  $\frac{48}{-3}$

36.  $\frac{-120}{12}$

$(-5)^2$

41. Simplify:  $2y - 6 + 4y + 8$

42. Simplify:  $6x + 2 - 3x + 7$

43. Determine whether  $-1$  is a solution of the equation  $3y + 1 = 3$ .

44. Determine whether  $2$  is a solution of  $5x - 3 = 7$ .

45. Solve:  $-12x = -36$

46. Solve:  $-3y = 15$

47. Solve:  $2x - 6 = 18$

48. Solve:  $3a + 5 = -1$

49. A salesperson at an electronics store sold a computer system and software for \$2100, receiving four times as much money for the computer system as for the software. Find the price of each.

50. Rose Daunis is thinking of a number. Two times the number plus four is the same amount as three times the number minus seven. Find Rose's number.

## Summer Fluency Practice

Directions: You should be fluent in operations with integers. You should be able to complete this worksheet in two minutes to be considered fluent. I have attached two additional practice worksheets (**only this one must be completed for credit**). You will take a timed test on integers within the first month of school.

$9 - 6 =$

$(-5) + 7 =$

$(-9) + (-2) =$

$7 - (-2) =$

$(-2) + 2 =$

$(-8) - 1 =$

$5 - (-1) =$

$2 + 1 =$

$7 + 1 =$

$15 \div 3 =$

$8 \div (-4) =$

$(-4) - 4 =$

$9 \times (-8) =$

$25 \div (-5) =$

$1 + 7 =$

$4 \div 2 =$

$(-6) \times (-1) =$

$5 \times 6 =$

$16 \div 2 =$

$5 + 5 =$

$(-5) \times (-2) =$

$6 \times (-8) =$

$9 + (-7) =$

$(-27) \div (-3) =$

$9 - 1 =$

$4 \times (-7) =$

$(-2) - 7 =$

$3 + 4 =$

$(-6) - (-1) =$

$5 - (-4) =$



**Optional**

$5 + 4 =$

$(-24) \div 8 =$

$(-9) \div (-1) =$

$(-10) \div 5 =$

$63 \div (-9) =$

$(-6) \div (-6) =$

$(-25) \div (-5) =$

$(-6) \div 3 =$

$4 - (-9) =$

$(-3) - (-1) =$

$2 \times 2 =$

$6 + (-1) =$

$1 + 8 =$

$(-6) \times (-6) =$

$8 \div (-1) =$

$5 \div (-5) =$

$3 \div 3 =$

$(-2) + 1 =$

$9 - 2 =$

$3 - (-3) =$

$9 \times (-9) =$

$6 \times (-3) =$

$4 + 4 =$

$8 \times (-4) =$

$(-6) + (-6) =$

$(-8) - 3 =$

$(-5) \times (-9) =$

$5 + (-6) =$

$(-4) \div (-1) =$

$(-2) + (-7) =$

Optional

$7 \times 6 =$

$(-4) + (-9) =$

$24 \div 6 =$

$(-7) + 2 =$

$21 \div (-7) =$

$(-8) \times (-8) =$

$(-35) \div 7 =$

$(-8) - (-6) =$

$(-9) + (-4) =$

$6 + 4 =$

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

$2 + (-9) =$

$4 \times 5 =$

$3 - 7 =$

$(-5) - 6 =$

$9 - 3 =$

$(-1) - (-5) =$

$(-3) - 1 =$

$(-6) + (-9) =$

$5 - 2 =$

$56 \div (-8) =$

$(-72) \div (-8) =$

$(-8) \times (-1) =$

$16 \div (-2) =$

$14 \div 2 =$

$6 + (-8) =$

$28 \div (-7) =$

$(-7) - (-4) =$

$(-9) \times (-6) =$

$6 \div (-1) =$

# QR CODES:

Each QR code links to a video lesson on Khan Academy. At the top of the web page, you will notice you have the option to watch additional videos or do practice problems for extra help.

Adding and Subtracting Fractions



Dividing Fractions



Adding Decimals



Subtracting Decimals



Multiplying Decimals



Dividing Decimals



Solving one-step equations

Changing numeric and verbal expressions



Adding and subtracting Integers



Multiplying and Dividing Integers



Combining Like Terms



**OPTIONAL: Integer Operation Practice Game:** Students should be fluent with adding, subtracting, multiplying, and dividing with integers. This will direct you to a game that is easy to practice integers.

Link: <http://www.hoodamath.com/mobile/games/integerstimedtests.html>

QR Code:

