

## Flex Summer Math Packet Practice: Entering Algebra I

This packet is designed to help student stay on track over the summer and enter Algebra I confident and prepared for a great school year. If a student struggles with these concepts, we highly recommend they watch the instructional videos and review the notes provided. The instructional videos, available via Khan Academy, may be viewed easily by scanning the QR codes with a smartphone. After watching a video, students can choose to continue watching videos for extra help or work problems live on the site with immediate feedback. **All pages of this packet, plus the grade-appropriate requirement of the Multiplication Math Fact Fluency and Speed packet, will be submitted as students' first math grade of the school year. Show ALL work to receive full credit!**

### Concept 1: Integer Operations

Directions: Solve each problem showing all steps and circle your answer. Evaluate each expression. NO CALCULATOR ALLOWED.

1.  $68 + 22 + 50 - 36$

2.  $84 + 80 - 67 + 68$

3.  $96 + (-1) - 45 - 98$

Find each product.

4.  $6 \times 7 \times -2$

5.  $-10 \times 5 \times -7$

Find each quotient.

6.  $-105 \div 5$

7.  $\frac{-14(2)}{7}$

8.  $\frac{21}{-7}$

## Concept 2: Writing and Solving Multi-Step Equations

Directions: Solve the equation or inequality. Isolate the variable. Show all steps and circle your answers. NO CALCULATOR ALLOWED.

1.  $18 = -3(m - 6)$

2.  $-8(8n + 2) = 112$

3.  $-20 = -4x - 6$

4.  $12 = -4(-6x - 3)$

5.  $5(2x - 1) = 25$

6.  $3(2 - 5x) + 4(6x) = 12$

7.  $5y + 2(y - 6) = 4(y + 1) - 2$

8.  $4(2n + 1) = 3(6n + 3) + 1$

Write each sentence as an algebraic equation and solve.

9. The product of a number and 9 is 34.

10. The difference of a number and 10 is equal to 30.

### Concept 3: Order of Operations

Directions: Simplify each expression. NO CALCULATOR ALLOWED.

1.  $6 \cdot 3^2 + 2 \cdot 8$

2.  $68 - 5 \cdot 2^3$

3.  $3(1 + 2 \cdot 5) + 4$

4.  $8 + 3(2 \cdot 6 - 1)$

5.  $\frac{4 + |6 - 2| + 8^2}{4 + 6 \cdot 4}$

6.  $5[3(2 + 5) - 5]$

7.  $\frac{-3 - 2(-9)}{-15 - 3(-4)}$

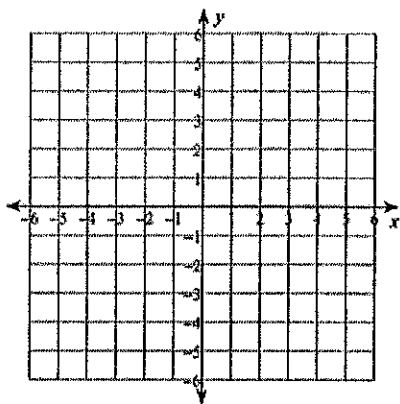
8.  $5 + 2[(7 - 5)^2 + (1 - 3)]$

### Concept 4: Graphing Linear Equations

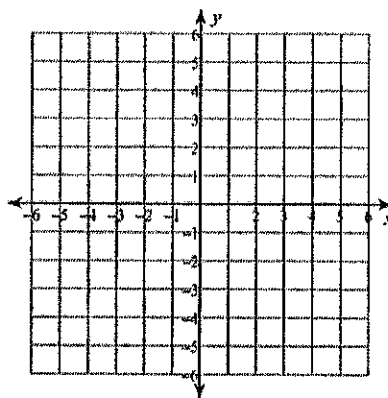
Directions: Sketch the graph of each line. Remember to use the y-intercept and the slope.

Slope-intercept form:  $y = mx + b$

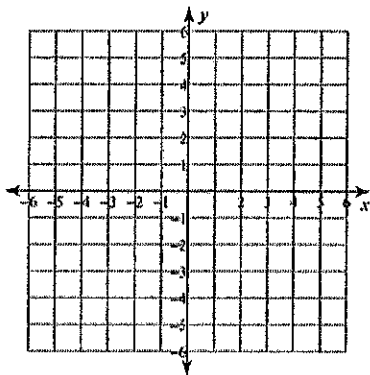
1.  $y = \frac{7}{4}x - 2$     $m =$     $b =$



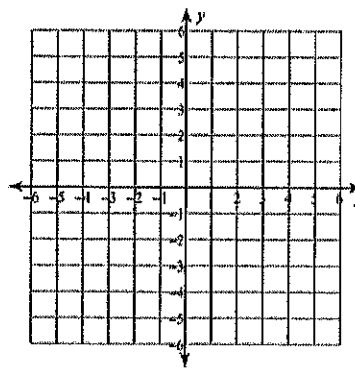
2.  $y = -\frac{4}{3}x + 3$     $m =$     $b =$



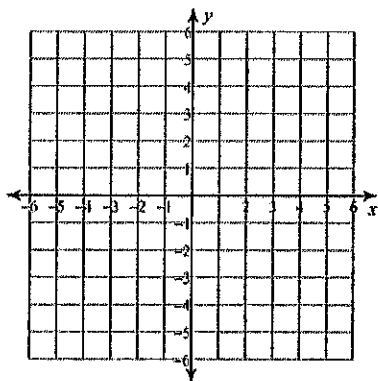
3.  $y = -3$     $m =$     $b =$



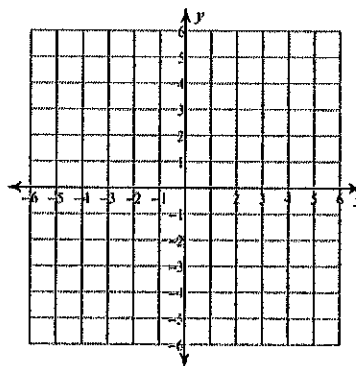
4.  $y = 4x + 5$     $m =$     $b =$



5.  $y = \frac{2}{5}x - 1$     $m =$     $b =$



6.  $y = -\frac{3}{2}x + 2$     $m =$     $b =$



### Concept 5: Polynomials

Directions: Simplify. NO CALCULATOR ALLOWED ON THIS SECTION.

1.  $(2h^7)(6h)$

2.  $\frac{k^{10}}{k^4}$

3.  $18x^2 - 7x + 5x^2 + 3x$

4.  $(3x + 2) + (5x - 7)$

5.  $(x - 7) - (5x + 3)$

6.  $(12a^7)(-4a^2b^6)$

7.  $\frac{n^3 \cdot n^5}{n^2}$

8.  $3(2 - 5y)$

\*\*\*For success in Algebra 1, all students need to know perfect squares from 1-17, 20, 25 and perfect cubes from 1-10. (ex:  $3^2 = 9$ ,  $15^2 = 225$ ,  $20^2 = 400$ ,  $5^3 = 125$ ,  $9^3 = 729$ ). This is good to learn with flash cards if you do not already know them.

### Concept 6: Factoring

Directions: Factor out the greatest common factor (GCF). You can check by multiplying. NO CALCULATOR ALLOWED ON THIS SECTION.

1.  $3y^2 + 18y$

2.  $10a^6 - 5a^8$

3.  $9b^3 - 54b^2 + 9b$

4.  $-35 + 14y - 7y^2$

5.  $25z^3 - 20z^2$

6.  $x^7 + x$

### Concept 7: Exponents

Directions: Simplify using the rules of exponents. NO CALCULATOR ALLOWED ON THIS SECTION.

1.  $\frac{p^7q^{20}}{pq^{15}}$

2.  $\frac{9a^4b^7}{27ab^2}$

3.  $x^0$

4.  $4x^0$

5.  $-7x^0$

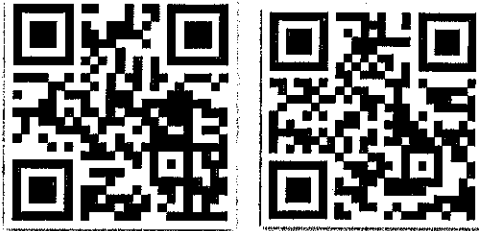
6.  $7x^{-3}$

7.  $(2x^{10}y^{-3})(9x^4y^{-7})$

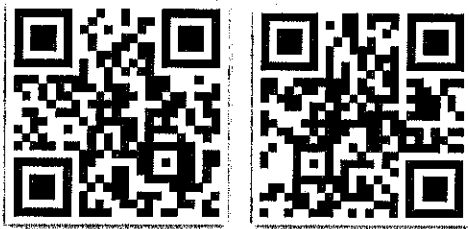
### QR CODES:

Each QR code links to a video lesson. Some are on YouTube, and others are on Khan Academy. Watching the videos is not mandatory, but they can be used to review the material on this review.

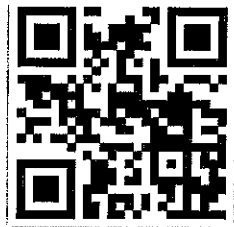
#### 1. Integer Operations



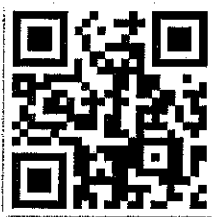
#### 2. Writing and Solving Multi-Step Equations



#### 3. Order of Operations



#### 4. Graph Linear Equations in Slope-Intercept Form



5. Adding and Subtracting Polynomials



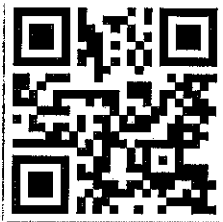
Multiplying Monomials



Dividing Monomials



6. Factoring GCF with Polynomials



7. Exponent Rules

