

## Flex Summer Math Packet Practice:

### Entering Algebra 1

**Purpose:** This packet is designed to help students stay on track over the summer and enter Algebra 1 confident and prepared for a great school year. If a student struggles with these concepts, I highly recommend that they watch the instructional videos 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 will be submitted as students' first math grade of the school year. Show ALL work to receive full credit!**

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

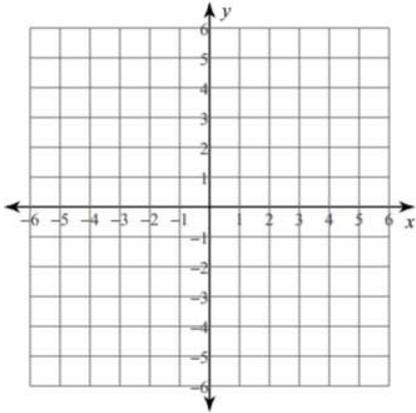
8.  $5 + 2[(7 - 5)^2 + (1 - 3)]$

### Concept 4: Graphing Linear Equations

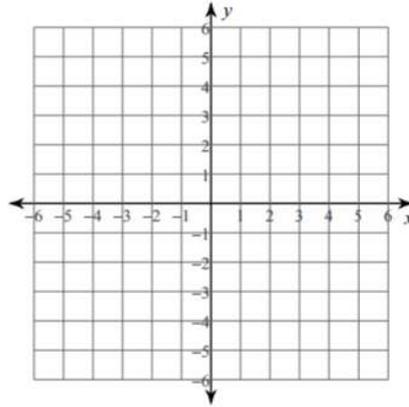
Directions: Sketch the graph of each line. Remember to use the y-intercept and the slope.

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

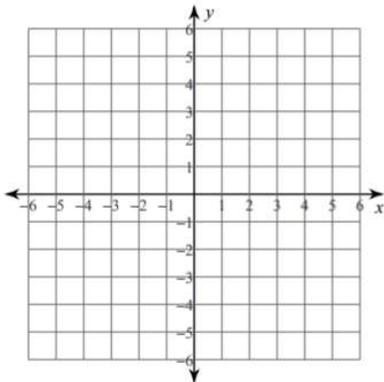
1.  $y = \frac{7}{4}x - 2$     $m =$     $b =$



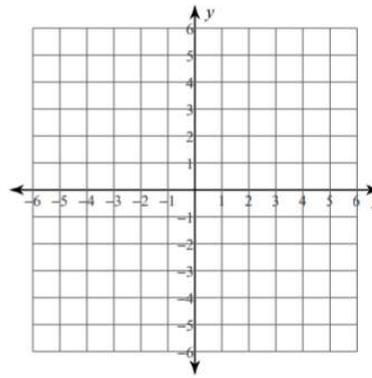
2.  $y = -\frac{4}{3}x + 3$     $m =$     $b =$



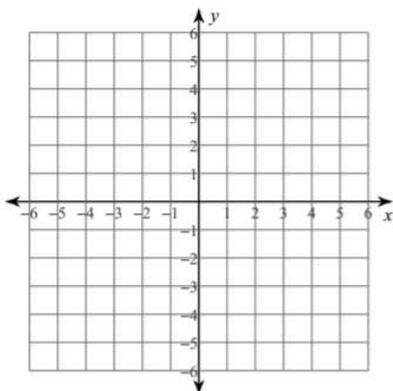
3.  $y = -3$     $m =$     $b =$



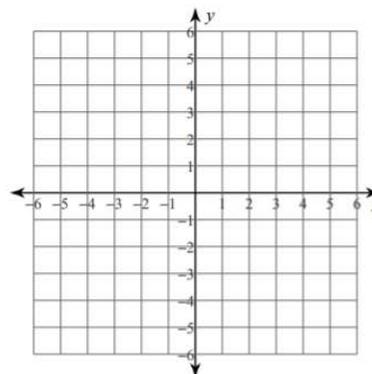
4.  $y = 4x + 5$     $m =$     $b =$



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



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



Conc

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.  $3(2 - 5y)$

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**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.  $-7x^0$

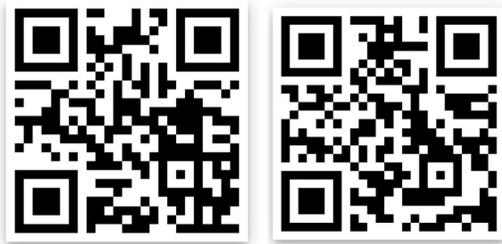
6.  $7x^{-3}$

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

