## Integrated III Honors Summer Math Packet

The following packet is intended to help you prepare for math in the upcoming school year. Work through it during your summer break, pacing yourself by spending around 20-30 minutes per week solving various problems. Try your best to complete the work without using a calculator. This packet will be graded, and you will be tested on these topics during the first week of school.

1. Express in simplest radical form.

√ <b>192</b>	$\sqrt{125}$	$\sqrt{48}$	$\sqrt{900}$
√81	√27	√54	√147
	V = -	v o i	v
$\sqrt{150}$	$\sqrt{24}$	$\sqrt{288}$	$\sqrt{49}$
$\sqrt{112}$	$\sqrt{162}$	$\sqrt{160}$	$\sqrt{432}$

2. Factor each of these trinomials. Show all of your work.

$x^2 - 3x - 28$	$x^2 + 13x + 30$	$x^2 + 7x + 6$
$-5x^2 + x + 6$	$3x^2 + 19x + 28$	$-6x^2 - 7x + 3$
$-x^{2}+3x+28$	$4x^2 + 12x + 5$	$6x^2 + 17x + 5$

3. Use the quadratic formula to solve for x. Show all of your work.

$x^2 - 9x + 11 = 0$	$5x^2 - 2 = 7x$	$0 = 4x^2 - 7x - 3$
$0 = 5x^2 + 20x + 16$	$-14x + 11 = -4x^2$	$x^2 - 10x = -2$
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4. Solve these literal equations. Show all of your work.

Solve the following equation for a.	Solve the following equation for d.
$b^2 = -g + \frac{1}{8}ra$	$m = \frac{g}{d} + 3$
Solve the following equation for b.	Solve the following equation for B.
$T = \sqrt{qb - 6}$	$-3f^3 + \frac{1}{2}MB = D$
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Solve the following equation for A.	Solve the following equation for b.
$-BA + g^2 = MA$	$N = -m^2 + \frac{3d}{b}$

5. Solve for the variable in each equation. Show all of your work.

Solve for z.	Solve for y.
-6 + 3z = 6	$-11 = -22 + \frac{y}{5}$
Solve for x.	Solve for c. Express your answer as a proper or improper fraction in simplest terms.
-3x + 4 = -8x - 26	$-\frac{3}{5} = -\frac{1}{5} + \frac{4}{9}c$
Solve for z. Express your answer as a proper or improper fraction in simplest terms.	Solve for x.
$\frac{1}{z} = \frac{1}{z} - \frac{1}{z}$	-11x - 4 = -6x + 31
6 2 4	
Solve for a.	Solve for x.
-56 = 5a - 11	5(3x+1)=50

Solve for all values of c in simplest form.	Solve for y in simplest form.	Solve for all values of x in simplest form.
$c^2 - 2 = 23$	$\frac{4}{y} = \frac{3}{5}$	$x^2 + 35 = 3x^2 - 63$
Solve for x in simplest form.	Solve for all values of x.	Solve for all values of x.
$10 = \sqrt{x + 5}$	$x^2 - 6x = -6x + 4$	$x^2 + x - 22 = x + 3$
Solve for all values of x.	Solve for all values of x.	Solve for all values of x.
$x^2 = -2x$	$x^2 - 13x + 24 = -x + 4$	$x^2 - 2x - 45 = 2x$

6. Solve for all solutions to the variable in each equation. Show all of your work.

7. Evaluate the expressions shown below and express your answers as proper or improper fractions in simplest form.

$\frac{-4}{5} \cdot \frac{11}{3}$	$\frac{9}{2} \times \frac{8}{3}$	$\frac{9}{7} - \frac{7}{10}$
$\frac{1}{3} + \frac{-1}{24}$	$\frac{1}{9} - \frac{-7}{6}$	$\frac{5}{2} - \frac{4}{11}$
$\frac{7}{-20} + \frac{-9}{8}$	$\frac{6}{19} - \frac{10}{19}$	$\frac{3}{10} \times \frac{5}{8}$
$-\frac{3}{16}-\frac{11}{20}$	$\frac{4}{9} \div \frac{11}{9}$	$\frac{5}{4} \div \frac{7}{12}$
$\frac{-9}{10} \times \frac{-1}{-100}$	$\frac{-1}{12} + \frac{7}{15}$	$\frac{5}{12} - \frac{5}{8}$
$\frac{11}{-8} \div \frac{12}{10}$	$\frac{9}{-4} \div \frac{9}{16}$	$\frac{5}{12} + \frac{4}{15}$

8. Solve the equation for all values of x by **completing the square**.

$$x^{2} + 16x = -63$$

$$x^{2} + 10x + 21 = 0$$

$$x^{2} + 24 = 10x$$

$$x^{2} + 24 = 10x$$

$$x^{2} - 8x = 9$$

$$x^{2} + 80 = -18x$$

$$2x^{2} - 16x = -24$$

$$3x^{2} - 60 = 24x$$

$$5x^{2} - 20x = 300$$

$$4x^{2} - 16x = 240$$