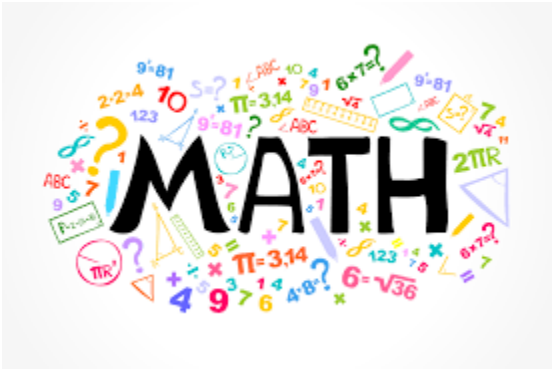
Summer Mathematics Packet
Students Entering College Algebra Readiness

(30 Points towards First Semester Grade)

Name _____

Grade Entering _____

Please submit this to your math teacher by September 8, 2025



Simplify each expression:

$$|15-7|-|14-6|$$

$$|17-8|-|13-4|$$

$$18-|2\,(8-3)|$$

$$15-|3\,(8-5)|$$

$$48+(-16)$$

$$34+(-19)$$

$$-14+(-12)+4$$

$$-17+(-18)+6$$

$$19+2\,(-3+8)$$

$$24+3\,(-5+9)$$

Evaluate each expression using the variable values given;

. $y + (-14)$ when
ⓐ $y = -33$ ⓑ $y = 30$

. $x + (-21)$ when
ⓐ $x = -27$ ⓑ $x = 44$

. $(x + y)^2$ when
$x = -3, y = 14$

. $(y + z)^2$ when
$y = -3, z = 15$

. $3x^2 - 4xy + 2y^2$ when
$x = -2, y = -3$

. $4x^2 - xy + 3y^2$ when
$x = -3, y = -2$

Add or subtract the pairs of fractions that are given:

$\frac{7}{12} + \frac{5}{8}$

$\frac{5}{12} + \frac{3}{8}$

$\frac{7}{12} - \frac{9}{16}$

$\frac{7}{16} - \frac{5}{12}$

$-\frac{13}{30} + \frac{25}{42}$

$-\frac{23}{30} + \frac{5}{48}$

$-\frac{39}{56} - \frac{22}{35}$

$-\frac{33}{49} - \frac{18}{35}$

$\frac{x}{3} + \frac{1}{4}$

$\frac{x}{5} - \frac{1}{4}$

$$\frac{5 \cdot 6 - 3 \cdot 4}{4 \cdot 5 - 2 \cdot 3}$$

$$\frac{8 \cdot 9 - 7 \cdot 6}{5 \cdot 6 - 9 \cdot 2}$$

$$\frac{5^2 - 3^2}{3 - 5}$$

$$\frac{6^2 - 4^2}{4 - 6}$$

$$\frac{7 \cdot 4 - 2(8 - 5)}{9 \cdot 3 - 3 \cdot 5}$$

$$\frac{9 \cdot 7 - 3(12 - 8)}{8 \cdot 7 - 6 \cdot 6}$$

Add or subtract to simplify each pair of decimals:

$$-16.53 - 24.38$$

$$-19.47 - 32.58$$

$$-38.69 + 31.47$$

$$-29.83 + 19.76$$

$$72.5 - 100$$

$$86.2 - 100$$

$$91.75 - (-10.462)$$

$$94.69 - (-12.678)$$

Convert each fraction or decimal to a percent number:

$\frac{17}{20}$

$\frac{17}{4}$

$-\frac{310}{25}$

$-\frac{18}{11}$

71%

150%

39.3%

7.8%

Solve each of these linear equations:

$$4n - 2n = 4$$

$$3 = x + 3 - 5x$$

$$-12 = 3 - 2k - 3k$$

$-1 = -3r + 2r$

$-3(4r - 8) = -36$

$75 = 3(-6n - 5)$

Solve these linear inequalities:

$4v \geq 9v - 40$

$5u \leq 8u - 21$

$13q < 7q - 29$

$9p > 14p - 18$

$12x + 3\,(x + 7) > 10x - 24$

$9y + 5\,(y + 3) < 4y - 35$

Solve each formula for the variable shown:

$P = IRT$ (T)

$y = 5x - 6$ *(x)*

$\frac{x+y}{3} = 5$ (x)

$ax + by = c$ (y)

$V = LWH$ (L)

$V = \pi r^2 h$ *(h)*

Solve each pair of linear equations using any strategy:

$$\begin{cases} 2x + y = -4 \\ 3x - 2y = -6 \end{cases}$$

$$\begin{cases} 2x + y = -2 \\ 3x - y = 7 \end{cases}$$

$$\begin{cases} x - 2y = -5 \\ 2x - 3y = -4 \end{cases}$$

$$\begin{cases} x - 3y = -9 \\ 2x + 5y = 4 \end{cases}$$

$$\begin{cases} 5x - 2y = -6 \\ y = 3x + 3 \end{cases}$$

Factor these polynomials using the best strategy for each problem:

$24x^3 + 44x^2$

$24a^4 - 9a^3$

$16n^2 - 56mn + 49m^2$

$6a^2 - 25a - 9$

$5u^4 - 45u^2$

$n^4 - 81$

$64j^2 + 225$

$5x^2 + 5x - 60$

$b^3 - 64$

Solve each rational equation:

$\frac{1}{2} + \frac{2}{3} = \frac{1}{x}$

$1 - \frac{2}{m} = \frac{8}{m^2}$

$\frac{1}{b-2} + \frac{1}{b+2} = \frac{3}{b^2-4}$

Solve these equations using the Quadratic Formula:

$$4x^2 - 5x + 1 = 0$$

$$7y^2 + 4y - 3 = 0$$

$$r^2 - r - 42 = 0$$

$$t^2 + 13t + 22 = 0$$

$$4v^2 + v - 5 = 0$$