Name: KEY September 16 Period: ___

Seat: ___

When the coefficient is multiplied...

(1) $\frac{-8n}{-8} = \frac{-64}{-8}$

$n = 8$

(2) $\frac{-7y}{-7} = \frac{28}{-7}$

$y = -4$

(3) $\frac{6a}{6} = \frac{0.96}{6}$

$a = .16$

(4) $\frac{-96}{4} = \frac{4c}{4}$

$c = -24$

(5) $\frac{17.5}{5} = \frac{5s}{5}$

$s = 3.5$

(6) $\frac{7r}{7} = \frac{-\frac{7}{2}}{7}$

$-\frac{7}{2} \div \frac{7}{1}$

$-\frac{7}{2} \times \frac{1}{7} = \frac{-7}{14} = -\frac{1}{2}$

$r = -\frac{1}{2}$

When the coefficient is divided...

(1) $\frac{7}{1} \cdot \frac{k}{7} = 13 \cdot 7$

$\frac{7k}{7} = 13 \cdot 7$

$k = 91$

(2) $\frac{7}{1} \cdot \frac{m}{7} = 12 \cdot \frac{7}{1}$

$\frac{7m}{7} = 12 \cdot 7$

$m = 84$

(3) $\frac{q}{-9} = -9 \cdot -9$

$q = 81$

(4) $\frac{2}{1} \cdot 14 = \frac{z}{2} \cdot \frac{2}{1}$

$z = 28$

(5) $\frac{4}{1} \cdot \frac{k}{4} = -\frac{17}{2} \cdot \frac{4}{1}$

$k = -\frac{68}{2}$

$k = -34$

Fractional Coefficients

① $\frac{2}{3}q = \frac{18}{2}$

$q = \frac{18}{1} \div \frac{2}{3}$

$\frac{18}{1} \times \frac{3}{2} = \frac{54}{2}$

$q = 27$

② $\frac{3}{4}x = \frac{9}{3}$

$x = \frac{9}{1} \div \frac{3}{4}$

$\frac{9}{1} \times \frac{4}{3}$

$\frac{36}{3}$

$x = 12$

③ $\frac{5}{8}y = \frac{-1}{5}$

$y = \frac{-1}{1} \div \frac{5}{8}$

$\frac{-1}{1} \times \frac{8}{5}$

$y = \frac{-8}{5} = -1\frac{3}{5}$

④ $\frac{5}{3} \cdot \frac{3}{5}m = \frac{15}{1} \cdot \frac{5}{3}$

$m = \frac{75}{3} = 25$

⑤ $\frac{8}{3} \cdot \frac{3}{8}p = \frac{9}{1} \cdot \frac{8}{3}$

$p = \frac{72}{3} = 24$

* another shorthand way multiply by reciprocal on both sides!

Clearing the Fraction

Multiply whole equation by Lowest Common Denominator!

① $\frac{6}{1}\left(\frac{1}{2}x + \frac{2}{3}x = 7\right)$

$\frac{6}{2}x + \frac{12}{3}x = 42$

$3x + 4x = 42$

$7x = 42$

$x = 6$

② $\frac{15}{1}\left(\frac{3}{5}x + \frac{1}{3}x = 14\right)$

$\frac{45}{5}x + \frac{15}{3}x = 210$

$9x + 5x = 210$

$14x = 210$

$x = 15$

③ $\frac{12}{1}\left(\frac{1}{4}x + \frac{2}{3}x = 11\right)$

$\frac{12}{4}x + \frac{24}{3}x = 132$

$3x + 8x = 132$

$\frac{11x}{11} = \frac{132}{11}$

$x = 12$

④ $\frac{5}{1}\left(\frac{b+3}{5} = -1\right)$

$\frac{5(b+3)}{5} = -5$

$b + 3 = -5$

$-3 \quad -3$

$b = -8$

Name: KEY Date: Seat #

Level A

(1) $4x + 3x = 21$

$\frac{7x}{7} = \frac{21}{7}$

$x = 3$

(2) $7x - 2x = 25$

$\frac{5x}{5} = \frac{25}{5}$

$x = 5$

(3) $7x + 2 + x = 18$

$8x + 2 = 18$

$-2 \quad -2$

$\frac{8x}{8} = \frac{16}{8}$

$x = 2$

(4) $6x + 2 + 3 = 35$

$6x + 5 = 35$

$-5 \quad -5$

$\frac{6x}{6} = \frac{30}{6}$

$x = 5$

(5) $8x - 2 = 40 + 6$

$8x - 2 = 46$

$+2 \quad +2$

$\frac{8x}{8} = \frac{48}{8}$

$x = 6$

Level B

(1) $1.5x + 15 = 24$

$-15 \quad -15$

$\frac{1.5x}{1.5} = \frac{9}{1.5}$

$x = 6$

(2) $8x - 6x - 25 = -35$

$2x - 25 = -35$

$+25 \quad +25$

$\frac{2x}{2} = \frac{-10}{2}$

$x = -5$

(3) $\frac{1}{2}x + 2 = 8$

$-2 \quad -2$

$\frac{2}{1} \cdot \frac{1}{2}x = 6 \cdot \frac{2}{1}$

$x = 12$

(4) $\frac{q}{1} \cdot \frac{q}{q} = -9$

$\frac{-q^2}{-q} = -9 \times -9$

$q = 81$

(5) $\frac{k}{4} \cdot \frac{4}{1} = \frac{-17}{2} \cdot \frac{4}{1}$

$k = 34$

(6) $\frac{4}{3} \cdot \frac{3}{4}x = 12 \cdot \frac{4}{3}$

$\frac{12}{12}x = \frac{12}{1} \cdot \frac{4}{3}$

$x = \frac{48}{3}$ or 16

(7) $\frac{3}{2} \cdot \frac{2}{3}x = 10 \cdot \frac{3}{2}$

$\frac{6}{6}x = \frac{10}{1} \cdot \frac{3}{2}$

$x = \frac{30}{2}$ or 15

Level C

① $\frac{9}{4} \cdot \frac{36}{1} = \frac{9}{4} \cdot \frac{4}{9}d$

$\frac{324}{4} = \frac{36}{36}d$

$81 = d$

② $4\frac{1}{4} = 1\frac{3}{4} + p$ — change to improper

$\frac{17}{4} = \frac{7}{4} + p$

$-\frac{7}{4} \quad -\frac{7}{4}$

$\frac{10}{4} = p$ or $\frac{5}{2}$ or $2\frac{1}{2}$

③ $\frac{2}{1} \cdot \frac{y-4}{2} = 10 \cdot \frac{2}{1}$

$y - 4 = 20$

$+4 \quad +4$

$y = 24$

④ $26 = \frac{m}{6} + 5$

$-5 \quad -5$

$\frac{6}{1} \cdot 21 = \frac{m}{6} \cdot \frac{6}{1}$

$126 = m$

⑤ $7\frac{1}{2} = \frac{x+3}{2}$

$\frac{2}{1}\left(\frac{15}{2} = \frac{x+3}{2}\right)$

$\frac{30}{2} = x + 3$

$15 = x + 3$

$-3 \quad -3$

$12 = x$

⑥ $\frac{2}{1} \cdot 4 = \frac{a+10}{2} \cdot \frac{2}{1}$

$8 = a + 10$

$-10 \quad -10$

$-2 = a$