

Objective #2

Solve linear equations (Page 1 of 4)

Solve:

1. $\frac{1}{6}u - \frac{1}{18} + \frac{1}{2}u = \frac{1}{2} + u$ [A] $\frac{4}{3}$ [B] $\frac{5}{3}$ [C] $-\frac{4}{3}$ [D] none of these

LCD: $\begin{array}{r} 2 \overline{) 6} \\ 3 \end{array}$ $\begin{array}{r} 2 \overline{) 18} \\ 3 \overline{) 9} \\ 3 \end{array}$ 2

$$\text{LCD} = 2 \cdot 3^2 = 18$$

Multiply by LCD

$$3 \cancel{18} \cdot \frac{u}{\cancel{6}} - \cancel{18} \cdot \frac{1}{\cancel{18}} + \cancel{9} \cancel{18} \cdot \frac{u}{\cancel{2}} = \cancel{9} \cancel{18} \cdot \frac{1}{\cancel{2}} + 18 \cdot u$$

$$3u - 1 + 9u = 9 + 18u$$

Isolate

$$3u - 1 + 9u = 9 + 18u$$

$$12u - 1 = 9 + 18u$$

$$-18u + 1 \quad + \quad -18u$$

$$\frac{-6u = 10}{-6 \quad -6}$$

$$u = -\frac{10}{6}$$

Simplify

$$u = -\frac{5}{3}$$

Solve linear equations (Page 2 of 4)

2. $\frac{x+2}{7} - \frac{x-2}{9} = 4$ [A] -14 [B] 0 [C] 124 [D] 110

LCD: $7 \quad 3 \left| \frac{9}{3} \right.$

$7 \cdot 3 = 63$

Multiply by LCD:

$9 \cdot 63 \left(\frac{x+2}{7} \right) - 7 \cdot 63 \left(\frac{x-2}{9} \right) = 4 \cdot 63$

$9x + 18 - 7x + 14 = 252$

Isolate

$9x + 18 - 7x + 14 = 252$

$2x + 32 = 252$

$-32 \quad -32$

$2x = 220$

$\frac{2x}{2} = \frac{220}{2}$

Simplify $x = 110$

Solve linear equations (Page 3 of 4)

3. $0.6(3.25 - 7x) = -3.7x$ [A] -2.47 [B] 0.59 [C] 0.61 [D] 3.90

LCD: Does not apply

Isolate:

$$0.6(3.25 - 7x) = -3.7x$$

$$1.95 - 4.2x = -3.7x$$
$$+4.2x \quad +4.2x$$

$$\frac{1.95}{0.5} = \frac{0.5x}{0.5}$$

Simplify $3.9 = x$

Solve linear equations (Page 4 of 4)

4. $5(a+9) = [a - (6-a)]$ [A] $10\frac{3}{5}$ [B] -17 [C] 17 [D] none of these

LCD: Does not apply

* For problems like these it is crucial to distribute the subtraction properly. *

Isolate $5(a+9) = [a - (6-a)]$

$5a+45 = a-6+a$

Combine like terms

$5a+45 = 2a-6$
 $-2a-45 \quad -2a-45$

$\frac{3a}{3} = \frac{-51}{3}$

$a = \frac{-51}{3}$

Simplify

$a = -17$

$3 \overline{) 51}$
 $\underline{-3}$
 21