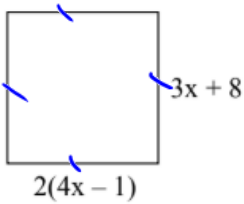


THINK ABOUT IT

Determine the value of x if the given shape below is a square.



$$2(4x-1) = 3x+8 \quad \text{both sides are equal}$$

$$8x-2 = 3x+8 \quad \text{eliminate } 3x \text{ from right side}$$

$$\begin{array}{r} 8x-2 \\ -3x \\ \hline 5x-2 = 8 \end{array}$$

$$\begin{array}{r} 5x-2 \\ +2 \quad +2 \\ \hline 5x = 10 \\ \hline x = 2 \end{array}$$

CHECK

SOLVING EQUATIONS WITH FRACTIONS

$$6 \times \frac{2}{3} = \frac{6}{1} \times \frac{2}{3}$$

$$= \frac{6 \times 2}{1 \times 3} = \frac{12}{3} = 4$$

OR $2 \times \frac{2}{1} = 4$

Steps:

1. Determine the Lowest Common Denominator for all the fractions
2. Multiply every term by LCD
3. solve for x

Teacher	Your Turn	
$3 \cdot \frac{x}{2} - 2 \cdot \frac{1}{3} = 6 \cdot \frac{13}{6}$ <p>LCD=6</p> $3 \cdot x - 2 \cdot 1 = 1 \cdot 13$ $3x - 2 = 13$ $\begin{array}{r} 3x - 2 \\ +2 \quad +2 \\ \hline 3x = 15 \\ \hline \frac{3x}{3} = \frac{15}{3} \\ \hline x = 5 \end{array}$	$a) \frac{x}{3} - 6 \cdot 3 = \frac{7}{2}$ <p>LCD=6</p> $2 \cdot x - 18 = 3 \cdot 7$ <p>simplify</p> $2x - 18 = 21$ $\begin{array}{r} 2x - 18 \\ +18 \quad +18 \\ \hline 2x = 39 \\ \hline \frac{2x}{2} = \frac{39}{2} \\ \hline x = \frac{39}{2} \text{ or } 19 \frac{1}{2} \end{array}$	$b) \frac{x}{4} + \frac{x}{2} = 46$ <p>LCD=4</p> $1 \cdot x + 2 \cdot x = 24$ <p>simplify</p> $x + 2x = 24$ $\frac{3x}{3} = \frac{24}{3}$ $x = 8$
$6 \cdot \frac{(x-4)}{2} = 2 \cdot \frac{(x-3)}{3}$ <p>* Add Brackets LCD=6</p> $3(x-4) = 2(x-3)$ $\begin{array}{r} 3(x-4) \\ \hline 3x-12 \\ \hline \end{array} = \begin{array}{r} 2(x-3) \\ \hline 2x-6 \\ \hline \end{array}$ $\begin{array}{r} 3x-12 \\ -2x \\ \hline x-12 = -6 \\ +12 \quad +12 \\ \hline x = 6 \end{array}$	$a) \frac{(5x+4)}{5} = \frac{(5x+13)}{10}$ <p>LCD=10</p> $2(5x+4) = 1 \cdot (5x+13)$ $\begin{array}{r} 2(5x+4) \\ \hline 10x+8 \\ \hline \end{array} = \begin{array}{r} (5x+13) \\ \hline 5x+13 \\ \hline \end{array}$ $\begin{array}{r} 10x+8 \\ -5x \\ \hline 5x+8 = 13 \\ -8 \quad -8 \\ \hline 5x = 5 \\ \hline \frac{5x}{5} = \frac{5}{5} \\ \hline x = 1 \end{array}$	$b) \frac{1}{3}(x+4) = \frac{1}{5}(x+2)$ <p>LCD=15</p> $5(x+4) = 3(x+2)$ $\begin{array}{r} 5(x+4) \\ \hline 5x+20 \\ \hline \end{array} = \begin{array}{r} 3(x+2) \\ \hline 3x+6 \\ \hline \end{array}$ $\begin{array}{r} 5x+20 \\ -3x \\ \hline 2x+20 = 6 \\ -20 \quad -20 \\ \hline 2x = -14 \\ \hline \frac{2x}{2} = \frac{-14}{2} \\ \hline x = -7 \end{array}$

1. Solve each equation below on a separate sheet of paper and find the solution in the code. Each time the solution appears, write the letter of that exercise above it.

What do you get when you cross an absent minded elephant with a small flea?
A F O R G E T M E G N A T

What do you get when you cross a shark with a snowball?
F R O S T B I T E

<p>G] $6 \cdot \frac{x}{2} + 6 \cdot \frac{2x}{3} = 6 \cdot 5$ LCD=6</p> <p>$3 \cdot x + 2 \cdot 2x = 30$ Simplify</p> <p>$3x + 4x = 30$</p> <p>$7x = 30$</p> <p>$x = 30/7$</p>	<p>M] $5 \cdot \frac{2}{5}x - 5 \cdot \frac{4}{3} = 5 \cdot \frac{1}{3}x + 5 \cdot \frac{1}{5}$</p> <p>$3 \cdot 2x - 5 \cdot 4 = 5 \cdot 1x + 3 \cdot 1$</p> <p>$6x - 20 = 5x + 3$</p> <p>$x - 20 = 3$</p> <p>$x = 23$</p>	<p>I] $10 \cdot \frac{9x}{5} - 10 \cdot \frac{3x}{2} = 10 \cdot 6$ LCD=10</p> <p>$2 \cdot 9x - 5 \cdot 3x = 10 \cdot 6$</p> <p>$18x - 15x = 60$</p> <p>$3x = 60$</p> <p>$x = 20$</p>
<p>B] $14 \cdot \frac{3}{4}k + 14 \cdot \frac{5}{7} = 14 \cdot \frac{4}{7} + 14 \cdot \frac{1}{2}k + 14 \cdot \frac{1}{2}$</p> <p>$3k + 10 = 8 + 7k + 7$</p> <p>$3k + 10 = 15 + 7k$</p> <p>$-3k = 5$</p> <p>$k = -5/3$</p>	<p>O] $16 \cdot \frac{n}{4} - 16 \cdot \frac{3}{2} = 16 \cdot \frac{1}{16} - 16 \cdot \frac{15}{16}$</p> <p>$4n - 24 = 1 - 15$</p> <p>$4n = -14$</p> <p>$n = -14/4$</p>	<p>R] $20 \cdot \frac{x}{4} - 20 \cdot 2 + 20 \cdot \frac{3}{4} = 20 \cdot x - 20 \cdot \frac{2}{5}$</p> <p>$5x - 40 + 15 = 20x - 8$</p> <p>$5x - 25 = 20x - 8$</p> <p>$-15x = 17$</p> <p>$x = -17/15$</p>
<p>S] $6 \cdot \frac{a}{3} + 6 \cdot \frac{5}{3} = 6 \cdot \frac{7}{2}$ LCD=6</p> <p>$2a + 10 = 21$</p> <p>$2a = 11$</p> <p>$a = 11/2$</p>	<p>N] $6 \cdot \frac{4x}{3} - 6 \cdot \frac{x}{3} - 6 \cdot \frac{1}{2} = 6 \cdot \frac{9}{2}$</p> <p>$2 \cdot 4x - 2x - 3 \cdot 1 = 3 \cdot 9$</p> <p>$8x - 2x - 3 = 27$</p> <p>$6x - 3 = 27$</p> <p>$6x = 30$</p> <p>$x = 5$</p>	<p>A] $8 \cdot \frac{3x}{4} - 8 \cdot \frac{1}{4} + 8 \cdot \frac{x}{2} = 8 \cdot \frac{3}{8}$</p> <p>$2 \cdot 3x - 2 \cdot 1 + 4 \cdot x = 1 \cdot 3$</p> <p>$6x - 2 + 4x = 3$</p> <p>$10x - 2 = 3$</p> <p>$10x = 5$</p> <p>$x = 1/2$</p>
<p>F] $30 \cdot \frac{1}{10}m + 30 \cdot \frac{4}{5} - 30 \cdot \frac{1}{15}m + 30 \cdot \frac{1}{3} = 30 \cdot 1$</p> <p>$3m + 24 - 2m + 10 = 30$</p> <p>$m + 34 = 30$</p> <p>$m = -4$</p>	<p>E] $12 \cdot \frac{2t}{3} - 12 \cdot \frac{5t}{4} + 12 \cdot \frac{2}{3} = 12 \cdot \frac{11}{6}$</p> <p>$4 \cdot 2t - 3 \cdot 5t + 4 \cdot 2 = 2 \cdot 11$</p> <p>$8t - 15t + 8 = 22$</p> <p>$-7t + 8 = 22$</p> <p>$-7t = 14$</p> <p>$t = -2$</p>	<p>T] $20 \cdot \frac{5x}{6} - 20 \cdot \frac{3}{8} + 20 \cdot \frac{x}{8} = 20 \cdot \frac{x}{3} + 20 \cdot \frac{1}{4}$</p> <p>$4 \cdot 5x - 3 \cdot 3 + 3 \cdot x = 8x + 6 \cdot 1$</p> <p>$20x - 9 + 3x = 8x + 6$</p> <p>$23x - 9 = 8x + 6$</p> <p>$15x - 9 = 6$</p> <p>$15x = 15$</p> <p>$x = 1$</p>

2. Solve each equation below:

<p>a) $10 \cdot \frac{x}{2} + 10 \cdot \frac{4}{5} = 10 \cdot \frac{23}{10} - 10x$ LCD = 10</p> $5x + 2 \cdot 4 = 1 \cdot 23 - 10x$ $5x + 8 = 23 - 10x$ $\begin{array}{r} +10x \\ +10x \end{array}$ $15x + 8 = 23$ $\begin{array}{r} -8 \\ -8 \end{array}$ $\frac{15x}{15} = \frac{15}{15}$ $x = 1$	<p>b) $8x - \frac{1}{2}x - \frac{1}{8} = 8x + \frac{5}{8}$ LCD = 8</p> $\begin{array}{r} -4x - 1 \\ +4x \end{array} = \begin{array}{r} 8x + 5 \\ +4x \end{array}$ $\begin{array}{r} -1 \\ -9 \end{array} = \begin{array}{r} 12x + 5 \\ -5 \end{array}$ $\frac{-6}{12} = \frac{12x}{12}$ $\frac{-6 \div 6}{12 \div 6} = x$ $x = -\frac{1}{2}$
<p>c) $5 \cdot 6 = -\frac{3}{5}(a - 7)$</p> $30 = -3(a - 7)$ $30 = -3a + 21$ $\begin{array}{r} -21 \\ -21 \end{array}$ $\frac{9}{-3} = \frac{-3a}{-3}$ $-3 = a$ $a = -3$	<p>d) $\frac{1}{3}(p + 2) = -5 \times 3$</p> $(p + 2) = -15$ $p + 2 = -15$ $\begin{array}{r} -2 \\ -2 \end{array}$ $p = -17$
<p>e) $\frac{3x + 5}{5} = 12 \cdot 5$</p> $3x + 5 = 60$ $\begin{array}{r} -5 \\ -5 \end{array}$ $\frac{3x}{3} = \frac{55}{3}$ $x = \frac{55}{3}$	<p>f) $\frac{3(s - 4)}{4} = \frac{2(s - 3)}{3}$ LCD = 12</p> $9(s - 4) = 8(s - 3)$ $9s - 36 = 8s - 24$ $\begin{array}{r} -8s \\ -8s \end{array}$ $s - 36 = -24$ $\begin{array}{r} +36 \\ +36 \end{array}$ $\boxed{s = 12}$