

Clearing Fractions Practice

Use the following information to answer the first question.

Four math students were given an equation and asked to clear the fractions.

<u>Student 1</u>		<u>Student 2</u>	
Question	$8 - \frac{2x}{3} = \frac{1}{2} - \frac{x}{4}$	Question	$\frac{3}{5}x - 9 = -3$
Multiplication	$6\left(8 - \frac{2x}{3} = \frac{1}{2} - \frac{x}{4}\right)$	Multiplication	$5\left(\frac{3}{5}x - 9 = -3\right)$
Result	$48 - 4x = 3 - 2x$	Result	$5x - 9 = -3$
<u>Student 3</u>		<u>Student 4</u>	
Question	$\frac{1}{2}x + 3 = \frac{34}{4}$	Question	$\frac{5x}{7} + 9 = \frac{x}{3}$
Multiplication	$4\left(\frac{1}{2}x + 3 = \frac{34}{4}\right)$	Multiplication	$21\left(\frac{5x}{7} + 9 = \frac{x}{3}\right)$
Result	$2x + 12 = 34$	Result	$15x + 9 = 7x$

1. The student providing the correct result is number

A) 1

B) 2

C) 3

D) 4

2. When $-\frac{5}{6} + \frac{x}{2} = \frac{3x}{4} + 1$ is re-written in an equivalent form without fractions,

the result is

A) $-10 + 6x = 9x + 1$

B) $10 + 12x = 3x + 12$

C) $10 + 12x = 3x + 1$

D) $-10 + 6x = 9x + 12$

3. The least common denominator for $15y - \frac{1}{6} + \frac{1}{2} = \frac{2y}{5}$ is
- A) 20 B) 24 C) 30 D) 60

4. When Danny cleared the fractions of $\frac{2}{9} - \frac{kx}{4} = 8$, the result was $8 - 27x = 288$. The value of K is _____.

5. Which of the following is the correct equivalent equation for $-4 + \frac{2}{x} = \frac{5}{8}$?
- A) $-32x + 16 = 5x$
B) $-32 + 16x = 5$
C) $-4 + 16 = 5x$
D) $-4 + 16x = 5$

6. When the fractions are cleared for the equation, $\frac{-4}{y^2} + \frac{3}{5} = \frac{2}{y}$, the result can be written in the form, $-20 + 3y^2 = Ky$. The value for K is _____.

7. Solve the following equation by first clearing the fraction.

$$\frac{1}{2} + \frac{2x}{5} = \frac{x}{3}$$

Clearing Fractions Practice **Solutions**

Use the following information to answer the first question.

Four math students were given an equation and asked to clear the fractions.

<u>Student 1</u>		<u>Student 2</u>	
Question	$8 - \frac{2x}{3} = \frac{1}{2} - \frac{x}{4}$	Question	$\frac{3}{5}x - 9 = -3$
Multiplication	$6\left(8 - \frac{2x}{3} = \frac{1}{2} - \frac{x}{4}\right)$	Multiplication	$5\left(\frac{3}{5}x - 9 = -3\right)$
Result	$48 - 4x = 3 - 2x$	Result	$5x - 9 = -3$
<u>Student 3</u>		<u>Student 4</u>	
Question	$\frac{1}{2}x + 3 = \frac{34}{4}$	Question	$\frac{5x}{7} + 9 = \frac{x}{3}$
Multiplication	$4\left(\frac{1}{2}x + 3 = \frac{34}{4}\right)$	Multiplication	$21\left(\frac{5x}{7} + 9 = \frac{x}{3}\right)$
Result	$2x + 12 = 34$	Result	$15x + 9 = 7x$

1. The student providing the correct result is number

A) 1

B) 2

C) 3

D) 4

Solution

Student 1 chose the incorrect LCD. The smallest number that the denominators (3, 2, and 4) divide evenly into is 12.

It should have been,

$$12\left(8 - \frac{2x}{3} = \frac{1}{2} - \frac{x}{4}\right), \text{ which is equal to } 96 - 8x = 6 - 3x$$

Student 2 selected the correct LCD, but did not multiply properly.

It should have been,

$$5\left(\frac{3}{5}x - 9 = -3\right), \text{ which is equal to } 3x - 45 = -15.$$

Student 3 is correct.

Student 4 selected the correct LCD, but the multiplication is not correct.

It should have been,

$$21\left(\frac{5x}{7} + 9 = \frac{x}{3}\right), \text{ which is equal to } 15x + 189 = 7x$$

The correct answer is C.

2. When $-\frac{5}{6} + \frac{x}{2} = \frac{3x}{4} + 1$ is re-written in an equivalent form without

fractions, the result is

A) $-10 + 6x = 9x + 1$

B) $10 + 12x = 3x + 12$

C) $10 + 12x = 3x + 1$

D) $-10 + 6x = 9x + 12$

Solution

The LCD is 12. Multiply 12 by each of the four terms in the equation.

$$12\left(-\frac{5}{6} + \frac{x}{2} = \frac{3x}{4} + 1\right), \text{ which is equal to } -10 + 6x = 9x + 12$$

The correct answer is D.

3. The least common denominator for $15y - \frac{1}{6} + \frac{1}{2} = \frac{2y}{5}$ is

A) 20

B) 24

C) 30

D) 60

Solution

The smallest number that the denominators (6, 2, and 5) divide evenly into is 30.

The correct answer is C.

4. When Danny cleared the fractions of $\frac{2}{9} - \frac{kx}{4} = 8$, the result was $8 - 27x = 288$. The value of K is 3.

Solution

The least common denominator is 36 (which is the smallest number that both 9 and 4 divide evenly into).

Multiply every term by 36.

$$36\left(\frac{2}{9} - \frac{kx}{4} = 8\right), \text{ which is equal to } 8 - 9Kx = 288$$

By observing the form of the result, $8 - 27x = 288$, we know that

$$9Kx = 27x$$

Divide both sides by $9x$.

$$K = 3.$$

The value of K is 3.

5. Which of the following is the correct equivalent equation for $-4 + \frac{2}{x} = \frac{5}{8}$?

- A) $-32x + 16 = 5x$
- B) $-32 + 16x = 5$
- C) $-4 + 16 = 5x$
- D) $-4 + 16x = 5$

Solution

The LCD is $8x$. Multiply each term by $8x$.

$$8x\left(-4 + \frac{2}{x} = \frac{5}{8}\right), \text{ which is equal to } -32x + 16 = 5x$$

The correct answer is A.

6. When the fractions are cleared for the equation, $\frac{-4}{y^2} + \frac{3}{5} = \frac{2}{y}$, the result can be written in the form, $-20 + 3y^2 = Ky$. The value for K is 10.

Solution

The least common denominator is $5y^2$. Multiply $5y^2$ by every term.

$$5y^2 \left(\frac{-4}{y^2} + \frac{3}{5} = \frac{2}{y} \right), \text{ which is equal to } -20 + 3y^2 = 10y$$

The value for K is 10.

7. Solve the following equation by first clearing the fraction.

$$\frac{1}{2} + \frac{2x}{5} = \frac{x}{3}$$

Solution

The LCD is 30. Multiply each term by 30.

$$30 \left(\frac{1}{2} + \frac{2x}{5} = \frac{x}{3} \right)$$

$$= 15 + 12x = 10x$$

Gather all variable terms to one side, and move the constant term to the opposite side.

$$12x - 10x = -15$$

$$2x = -15$$

$$x = -7.5$$