

King Fahd University of Petroleum and Minerals
Mathematical Sciences Department
Math 001
Quiz # 3
Term(041)

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Student's Name: ...Sample Key Solution

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SEC: 00

1) Find the solution set of each of the following equations:

(a) $\frac{12}{x+2} + \frac{7}{x-3} = \frac{9}{x-3}$

Sol:

Multiplying both sides by the *L.C.D* = $(x+2)(x-3)$ results in

$$12(x+2) + 7(x-3) = 9(x+2)$$

$$\Rightarrow x = 4, x \neq -2, 3 \Rightarrow \boxed{S.S. = \{4\}}$$

(b) $3|x-5| - 16 = 2$

Sol:

Simplify the given equation to $|x-5| = 6$

$$\Rightarrow x - 5 = 6 \text{ or } x - 5 = -6 \Rightarrow \boxed{x = -1, x = 11}$$

2) Solve $\frac{bx+2}{x+3c} = \frac{2}{3}$ for x

Sol:

$$3(bx+2) = 2(x+3c) \Rightarrow 3bx+6 = 2x+6c$$

collecting all the terms involving x in the L.H.S. gives

$$(3b-2)x = 6c-6 \Rightarrow \boxed{x = \frac{6c-6}{3b-2}}$$

3) Simplify

Sol:

$$\frac{(b^{-1}+a^{-1})^{-1}}{\left(\frac{ab}{2}\right)^{-2}} = \frac{\left(\frac{ab}{2}\right)^2}{(b^{-1}+a^{-1})} = \frac{(ab)^2}{4} = \frac{(ab)^2}{4} \cdot \frac{ab}{a+b} = \boxed{\frac{(ab)^3}{4(a+b)}}$$