**King Fahd University of Petroleum and Minerals**
**Prep-Year Math Program**
**Math (001)-Term (181)**
**Recitation (P.8)**

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**Question 1:** If $x=\frac{5}{12}$ is a solution of the equation $\frac{x}{5}-\frac{3}{2}=\frac{4x}{5}-\frac{a}{4}$ then $a$ is equal to:

(a) $-7$ (b $-\frac{1}{7}$ (c) $\frac{1}{7}$ (d) $7$ (e) $\frac{7}{4}$

**Answer: (d)** $7$

**Question 2:** Solve the equations for $k$ .

**(a):** $-k=(5k+3)(3x+1)$

**(b):** $\frac{k+1}{b}=\frac{k-1}{b}+\frac{b+1}{k}$

**Answer:** **(a):** $\frac{3x+1}{-5x-2}$ **(b):** $\frac{b(b+1)}{2}$

**Question 3:** Solve the following equations

**(a)** $3x-\frac{5x}{2}=\frac{x+1}{3}-\frac{1}{6}$

**(b)** $\frac{1}{x}-\frac{2}{2x+1}=\frac{1}{2x^2+x}$

**(c)** $\frac{1}{x+4}+\frac{1}{x}=\frac{2x+3}{x^2+4x}$

**Answer: (a)** $x=1 \quad SS=\{1\}$

**Answer: (b)** $SS=\left\{x \,\middle|\, x\neq -\frac{1}{2} \text{ and } x\neq 0\right\}=\left(-\infty,-\frac{1}{2}\right)\cup\left(-\frac{1}{2},0\right)\cup(0,\infty)$

**Answer: (c)** $SS=\varnothing$

**Question 4:** Find all real solutions of the following equations.

**(a):** $6x^{2/3}-216=0$

**(b):** $(x+2)^4-81=0$

**(c):** $(3x-4)^2-7=0$

**(d):** $\frac{x+1}{x-1}=\frac{3x}{3x-6}$

**Answer: (a):** $SS=\{-216,216\}$

**Answer: (b):** The real solutions are $x=-5$ and $x=1$

**Answer: (c):** $SS=\left\{\frac{4-\sqrt{7}}{3},\frac{4+\sqrt{7}}{3}\right\}$

**Answer: (d)** $SS=\varnothing$

**Question 5:** The difference between 5 times a number and 8 is equal 7 times the sum of the number and 3. Find the number.

**Answer:** $-\frac{29}{2}$

**Question 6:** If the length of each side of the original square is decreased by 4 inches, the perimeter of the new square is 10 inches more than half the perimeter of the original square. What are the dimensions of the original square?

**Answer:** The original square is 13 by 13 inches.