King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math (001)-Term (141)
Recitation (1.1 and 1.2)

Question1:

Determine whether each of the following equations is an identity, a conditional equation or a contradiction.

$(a)\ \dfrac{x-5}{3}-2x=2-\dfrac{x-5}{6}$ $(b)\ (x-2)^2=x^2-4$

$(c)\ \dfrac{4x+8}{4}=x+8$ (d) $(2x-3)^2-3x=(4x-3)(x-3)$

Answer:

a) $SS=\{-3\}$ Then the given equation is a conditional equation.

b) $SS=\{2\}$ Then the given equation is a conditional equation.

c) $SS=\varnothing$ Contradiction equation.

d) $SS=(-\infty,\infty)$ is an identity. Because:

Question2

Solve the following equations for the indicated variable:

(a): $z=y\left(1+\dfrac{m}{x}\right)$ for x (b): $y=\dfrac{a+x}{3-ax}$ for x

Answer: **a)** $x=\dfrac{ym}{z-y}$ **b)** $x=\dfrac{3y-a}{ay+1}$

Question3 A triangle has a perimeter 15 cm's. Each of the two equal sides of the triangle is one-third the length of the third side. Then find the product of the lengths of **all** side of the triangle

Answer: The produc of lenghts = 81

Note: It is impossible to have as above triangle because the sum of the two smaller sides is 3+3=6cm which is less than the third sides 9cm.

Question4

If the length of a rectangle is 6 cm. more than the width and the perimeter of the rectangle is 60 cm. then the length and the width of the rectangle are:

(a) 18 and 12 (b) 30 and 24 (c) 36 and 24

(d) 36 and 30 (e) 12 and 6

Answer: $\boxed{L=18\text{ cm}}$ and $\boxed{w=12\text{ cm}}$

Question5

If the equation $2\left[5(x-3)+m\right]=(m+4)x-18$ is an identity, then m is

(a) 6 (b) 3 (c) −4

(d) −7 (e) −18