

King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math (001)-Term (181)
Recitation (1. 4)

Question 1: For the given equation $\sqrt{7}x^2 + 6x - \sqrt{7} = 0$, state the number of distinct solutions, and determine whether they are rational, irrational, or non-real complex numbers.

Answer: It has two distinct irrational real solutions. $SS = \left\{ -\sqrt{7}, \frac{\sqrt{7}}{7} \right\}$

Question 2: The product of all the solutions of the equation $\frac{1}{r} + \frac{2}{1-r} = \frac{4}{r^2}$ is

- (a): 16 (b): 4 (c): -4 (d): 25 (e): 9

Answer: (c): -4

Question 3: When completing the square in the equation $4x(x - 2) = 7$ we get

$(x + a)^2 = b$, then $a + b^2 =$

- (a): $\frac{105}{16}$ (b): $\frac{33}{16}$ (c): $\frac{137}{16}$ (d): $-\frac{7}{16}$ (e): $\frac{65}{16}$

Answer: (a): $\frac{105}{16}$

Question 4: If the quadratic equation $kx^2 = kx - 16$ has a double solution (two equal solutions), then, $k =$

- (a): 0 and 64 (b): 0 (c): 64 (d): 16 (e): 0 and 16

Answer: (c): 64

Question 5:

(a) If the sum and the product of the two roots of the equation $0.9x^2 + bx + c = 0$ are $\frac{4}{3}$ and 1 respectively, then find the value of b and c .

(b) For the equation $9x^2 - 1 - 4xy = 3y^2$, solve for y in terms of x .

(c) Find the length of the rectangle if its area is 150 ft^2 and its perimeter 50 ft.

(a) Answer: $b = -1.2$ $c = 0.9$

(b) Answer: $y = \frac{-2x \pm \sqrt{31x^2 - 3}}{3}$ **(c) Answer:** $l = 15 \text{ ft}$