

8 Algebra CC – Quarter Test Extra Practice

Directions: Complete all problems below. Show all necessary work. AK is online!

1. Categorize each numerical expression below as *rational* or *irrational*. Explain your response.

a) $\sqrt{12} + \sqrt{4}$

b) $-\frac{5}{7} + 9.\bar{4}$

c) $(\sqrt{10})^2$

2. For which value of Q and R is $Q + R$ a rational number?

(1) $Q = \frac{1}{\sqrt{2}}$ and $R = \frac{1}{\sqrt{3}}$

(2) $Q = \frac{1}{\sqrt{16}}$ and $R = -\frac{1}{\sqrt{9}}$

(3) $Q = -\frac{1}{\sqrt{6}}$ and $R = -\frac{1}{\sqrt{5}}$

(4) $Q = \frac{1}{\sqrt{25}}$ and $R = \frac{1}{\sqrt{3}}$

3. Ms. Gizzi asked her class "Is the product of $6.\bar{2}$ and $\sqrt{5}$ rational or irrational?" Patrick answered that the product would be irrational. State whether Patrick is correct or incorrect. Justify your reasoning.

4. When solving the equation $3(x - 2) + 10 = 4x - 20$, Jennifer wrote $3(x - 2) = 4x - 30$ as her first step. Name the property that justifies Jennifer's first step.

5. To watch a varsity basketball game, spectators must buy a ticket at the door. The cost of an adult ticket is \$10.00 and the cost of a student ticket is \$3.50. If the number of adult tickets sold is represented by a and student tickets sold by s , write an expression that represents the amount of money collected at the door from the ticket sales.

6. A moving truck rental company charges a fixed fee for renting a truck for a certain number of hours and an overage charge for each hour used beyond that amount. A person renting a truck is charged \$150 for all hours up to and including 6 hours and \$15 for each additional hour. If g represents the total number of hours, which expression could represent the total cost of renting a truck for 6 hours or more?

(1) $150 + 15g$

(2) $150 + 15(g - 6)$

(3) $15 + 150(g - 6)$

(4) $150 + 15(6 - g)$

7. Fred is given a rectangular piece of paper. The length of Fred's piece of paper is represented by $3x - 10$ and the width is represented by $x^2 + 5x - 1$. Write a simplified polynomial expression to represent the *area* of the rectangle.

8. When $(x + 1)^2$ is subtracted from $3x^2$, the result is

(1) $2x^2 - 2x - 1$

(2) $2x^2 + 2x + 1$

(3) $2x^2 + 1$

(4) $2x^2 - 1$

9. Solve for x in each equation below.

a) $\frac{x+2}{6} + \frac{x}{4} = \frac{x+16}{12}$

b) $2a - bx = c$

c) $r = \frac{1}{4}ax^2$

10. Kevin wants to make a snack mix made up of almonds and raisins. He wants his mix to contain double the amount of almonds as compared to raisins. Almonds cost \$12 per pound and raisins cost \$8 per pound. If Kevin has \$40 to spend on the mix, how many pounds of each item can he purchase?