



Ottocento Lesson #14 Matching Coefficients + Clearing Denominators Worksheet

Video Solutions at: <https://youtu.be/2yNW7aj0698>

Question 1

$$(2x - a)^2 = 4x^2 + 12x + b$$

The equation above is true for all values of x , where a and b are constants. What is the value of $a + b$?

Question 2

$$(ax + 8)(bx - 2) = 100x^2 - 16$$

The equation above is true for all values of x , where a and b are positive constants. What is the value of $a - b$?

Question 3

$$(ax - 3)(2x^2 + bx - 7) = -10x^3 - 36x^2 + 17x + 21$$

The equation above is true for all values of x , where a and b are constants. What is the value of $\frac{b}{a}$?

Question 4

$$(3x + a)(8x + b) = 24x^2 + cx + 11$$

In the equation above, a and b are positive integer constants. If the equation is true for all values of x , what are the two possible values of c ?

Question 5

The expression $bx^2 - 13x + 22$ can be rewritten as $(hx - k)(x + j)$ where b is a constant and h, j , and k are integer constants. Which of the following must be an integer?

A) $\frac{k - 13}{h}$

B) $\frac{13}{b}$

C) $-\frac{j}{22}$

D) $\frac{k}{22}$

Question 6

$$\frac{3}{2x} + \frac{5}{7} = 3$$

What is the solution to the equation above? Express your answer as a simplified fraction.

Question 7

$$\frac{4}{x} - \frac{x}{x+3} = -5$$

The equation above has two unique solutions, a and b , where $a > b$. What is the value of a ?

Question 8

The equation below is true for all values of x where $x \neq \frac{2}{a}$ and $x \neq -1$. The number a is a constant. What is the value of a ?

$$\frac{3x}{ax-2} - \frac{7}{x+1} = \frac{3x^2 + 25x + 14}{(ax-2)(x+1)}$$

Question 9

The equation below is true for all values of x where $x \neq \frac{2}{7}$ and $x \neq \frac{10}{a}$. The numbers a and b are constants. What is the value of ab ?

$$\frac{6x}{7x-2} + \frac{20-5x^2}{(ax-10)(7x-2)} = -4b$$

Question 10

The equation below is true for all values of x where $x \neq -\frac{3}{a}$ and $x \neq \frac{5}{b}$ and .

The numbers a and b are constants. What is the value of $\frac{a}{b}$?

$$\frac{4x}{ax+3} - \frac{9}{bx-5} = \frac{29x^2 - 11ax - 27}{(ax+3)(bx-5)}$$