



**THIRD SPACE
LEARNING**

Math Equations

Algebra

Grades 9 to 12

Skill Questions

Name:

Date:

- 1 Solve the equation for n .

$$69 = 3(-4n - 5)$$

Answer

- 2 Solve the equation for r .

$$-3(1 + 6r) = 14 - r$$

Answer

- 3 Solve the equation for v .

$$4(4v + 4) - 3 = 1 + 4v$$

Answer

- 4 Solve the formula for w .

$$P = 2l + 2w$$

Answer

- 5 Solve the equation for a .

$$m = \frac{a + x}{a}$$

Answer

Math Equations Worksheet | Grades 9 to 12

- 6 Solve the equation for g .

$$m = 3gh - 5ng$$

Answer

- 7 Solve the equation for x .

$$x^2 - 16 = 0$$

Answer

- 8 Solve the equation for x .

$$x^2 - 6x + 8 = 0$$

Answer

- 9 Solve the equation for x .

$$7x^2 - 14x = -7$$

Answer

- 10 Solve the equation for m .

$$-5m^2 - 8m - 2 = -2 - 4m^2$$

Answer

Applied Questions

- 11 Lucas solves the equation using the following steps. Identify the step he made an error in and make the corrections.

$$x^2 + 5x - 35 = 3x - 35$$

Step 1: $x^2 + 8x - 35 = -35$

Step 2: $x^2 + 8x = 0$

Step 3: $x(x + 8) = 0$

Step 4: $x = 0$ $x = -8$

Answer

- 12 Six times a number minus four is equal to two times that number plus eight. Find the number.

Answer

- 13 Create a quadratic equation that has the solutions of 4 and -1.

Answer

14 A number squared minus four times that number equals 0.

a) Write an equation representing this situation.

Answer

b) Solve the equation.

Answer

15 The sides of a regular hexagon are 2 units less than the sides of a square. The perimeter of the square is equal to the perimeter of the regular hexagon. Find the side length of the square and the regular hexagon.

(Regular hexagon - all 6 sides are equal)

Answer

Answers

Question number	Question	Answers	Standard
1	Solve the equation for n . $69 = 3(-4n - 5)$	$69 = 3(-4n - 5)$ $69 = -12n - 15$ $84 = -12n$ $-7 = n$	HSA-REI.B.3
2	Solve the equation for r . $-3(1 + 6r) = 14 - r$	$-3(1 + 6r) = 14 - r$ $-3 - 18r = 14 - r$ $-17 - 18r = -r$ $-17 = 17r$ $-1 = r$	HSA-REI.B.3
3	Solve the equation for v . $4(4v + 4) - 3 = 1 + 4v$	$4(4v + 4) - 3 = 1 + 4v$ $16v + 16 - 3 = 1 + 4v$ $16v + 13 = 1 + 4v$ $12v = -12$ $v = -1$	HSA-REI.B.3
4	Solve the formula for w . $P = 2l + 2w$	$P = 2l + 2w$ $P - 2l = 2w$ $\frac{P - 2l}{2} = w$ $\frac{P}{2} - l = w$	HSA-CED.A.4
5	Solve the equation for a . $m = \frac{a + x}{a}$	$m = \frac{a + x}{a}$ $ma = a + x$ $ma - a = x$ $a(m - 1) = x$ $a = \frac{x}{m - 1}$	HSA-CED.A.4
6	Solve the equation for g . $m = 3gh - 5ng$	$m = 3gh - 5ng$ $m = g(3h - 5n)$ $\frac{m}{3h - 5n} = g$	HSA-CED.A.4

Math Equations Worksheet | Grades 9 to 12 | Answers

Question number	Question	Answers	Standard
7	Solve the equation for x . $x^2 - 16 = 0$	$x^2 - 16 = 0$ $x^2 = 16$ $\sqrt{x^2} = \sqrt{16}$ $x = \pm 4$	HSA-REI.B.4
8	Solve the equation for x . $x^2 - 6x + 8 = 0$	$x^2 - 6x + 8 = 0$ $(x - 2)(x - 4) = 0$ $x - 2 = 0$ $x - 4 = 0$ $x = 2$ $x = 4$	HSA-REI.B.4
9	Solve the equation for x . $7x^2 - 14x = -7$	$7x^2 - 14x = -7$ $7x^2 - 14x + 7 = 0$ $7(x^2 - 2x + 1) = 0$ $x^2 - 2x + 1 = 0$ $(x - 1)(x - 1) = 0$ $x - 1 = 0$ $x - 1 = 0$ $x = 1$ $x = 1$	HSA-REI.B.4
10	Solve the equation for m . $-5m^2 - 8m - 2 = -2 - 4m^2$	$-5m^2 - 8m - 2 = -2 - 4m^2$ $-m^2 - 8m = 0$ $-1(m^2 + 8m) = 0$ $m^2 + 8m = 0$ $m(m + 8) = 0$ $m = 0$ $m + 8 = 0$ $m = -8$	HSA-REI.B.4
11	Lucas solves the equation using the following steps. Identify the step he made an error in and make the corrections. $x^2 + 5x - 35 = 3 - 35$ Step 1: $x^2 + 8x - 35 = -35$ Step 2: $x^2 + 8x = 0$ Step 3: $x(x + 8) = 0$ Step 4: $x = 0$ $x = -8$	Step 1 has the error. When solving, $3x$ has to be subtracted from both sides of the equation, not added. So the correct solution is: $x^2 + 5x - 35 = 3x - 35$ $x^2 + 2x - 35 = -35$ $x^2 + 2x = 0$ $x(x + 2) = 0$ $x = 0$ $x + 2 = 0$ $x = -2$	HSA-REI.B.4

Math Equations Worksheet | Grades 9 to 12 | Answers




Question number	Question	Answers	Standard
12	Six times a number minus four is equal to two times that number plus eight. Find the number.	$6x - 4 = 2x + 8$ $4x = 12$ $x = 3$ The number is 3.	HSA-REI.B.3
13	Create a quadratic equation that has the solutions of 4 and -1.	Answers will vary: $(x - 4)(x + 1) = 0$ OR $x^2 - 3x - 4 = 0$ OR $x^2 - 3x = 4$ OR $x^2 - 4 = 3x$ OR $x^2 = 4 + 3x$	HSA-REI.B.4
14	A numbered squared minus four times that number equals 0. a) Write an equation representing this situation. b) Solve the equation.	a) $x^2 - 4x = 0$ b) $x(x - 4) = 0$ $x = 0$ $x - 4 = 0$ $x = 4$	HSA-REI.B.4
15	The sides of a regular hexagon are 2 units less than the sides of a square. The perimeter of the square is equal to the perimeter of the regular hexagon. Find the side length of the square and the regular hexagon. <i>(Regular hexagon - all 6 sides are equal)</i>	Side of hexagon = $x - 2$ Side of square = x Perimeter of square = $4x$ Perimeter of hexagon = $6(x - 2)$ $6(x - 2) = 4x$ $6x - 12 = 4x$ $-12 = -2x$ $6 = x$ The side of the square is 6 units. The side of the regular hexagon is $6 - 2 = 4$ units	HSA-REI.B.3

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