



New Maths GCSE: A19 - Linear and Quadratic Simultaneous Equations: Step-by-step

Name:.....

Date:.....

Step 1

$$x^2 + y^2 = 19$$

$$y = x + 5$$

Which of the following is a correct next step to solve these simultaneous equations?

A $x^2 + x^2 + 25 = 19$ **B** $x^2 + y^2 = 19$
 $y^2 = x^2 + 25$

C $x^2 + (x + 5)^2 = 19$ **D** $x + y = \sqrt{19}$
 $y = x + 5$

Correct Answer: A B C D

Explanation:

.....

.....

.....

.....

.....

.....

Step 2

$$x^2 + (x + 5)^2 = 19$$

Which of the following is a correct next step to solve these simultaneous equations?

A $x^2 + x^2 + 10x + 25 = 19$ **B** $x^2 + x^2 + 10x + 10 = 19$

C $x^2 + x^2 + 10 = 19$ **D** $x^2 + x^2 + 25 = 19$

Correct Answer: A B C D

Explanation:

.....

.....

.....

.....

.....

.....

Step 3

$$x^2 + x^2 + 10x + 25 = 19$$

Which of the following is the best next step to solve these simultaneous equations?

A $2x^2 + 10x = -6$ **B** $x + x + 10 = 0$

C $2x^2 + 10x + 6 = 0$ **D** $2x^2 + 10x - 6 = 0$

Correct Answer: A B C D

Explanation:

.....

.....

.....

.....

.....

.....

Step 4

$$2x^2 + 10x + 6 = 0$$

Having discovered it doesn't factorise, Which of the following is the best next step to solve this equation?

A $x = \frac{-2 \pm \sqrt{10^2 - 4 \times 12}}{20}$ B $x = \frac{-10 \pm \sqrt{10^2 - 4 \times 12}}{4}$

C $x = \frac{10 \pm \sqrt{10^2 - 4 \times 12}}{4}$ D $x = -10 \pm \frac{\sqrt{10^2 - 4 \times 12}}{4}$

Correct Answer: A B C D

Explanation:

.....

.....

.....

.....

.....

.....

Step 5

$$x = \frac{-10 \pm \sqrt{10^2 - 4 \times 12}}{4}$$

Using your calculator, what are the two solutions?

A $x = 0.541$
 $x = -5.541$ B $x = -8.197$
 $x = -11.803$

C $x = -0.697$
 $x = -4.303$ D $x = -6.394$
 $x = -13.606$

Correct Answer: A B C D

Explanation:

.....

.....

.....

.....

.....

.....

Step 6

$x = -0.697$
 $x = -4.303$

$$x^2 + y^2 = 19$$

$$y = x + 5$$

What is the next best step to solve these simultaneous equations?

A $y = 4.303$
 $y = 0.697$ B $y = -5.697$
 $y = -9.303$

C $y = 5.697$
 $y = 9.303$ D $y = -4.303$
 $y = -0.697$

Correct Answer: A B C D

Explanation:

.....

.....

.....

.....

.....

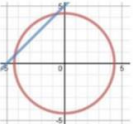
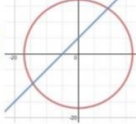
.....

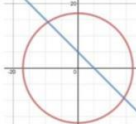
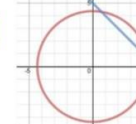
Step 7

$$x^2 + y^2 = 19$$

$$y = x + 5$$

Which diagram represents these two equations?

A  B 

C  D 

Correct Answer: A B C D

Explanation:

.....

.....

.....

.....

.....

.....