bananalearn

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Quadratic equations by factorisation: Grade 10

Practice worksheet - Maths · Grade 10

Name: _____ Date: _____

Show your working. Answers and explanations follow on a separate page.

Try each task before opening its answer. Give an example or reason, not only a label.

Write an answer and your reason before opening the explanation. Check the reasoning as well as the final answer.

1. Solve $x^2 + 5x + 6 = 0$.

2. Solve $x^2 - x - 6 = 0$.

3. Solve $x^2 - 9 = 0$.

4. Solve $x^2 + 4x = 0$.

5. Solve $2x^2 - 5x - 3 = 0$.

6. Solve $x^2 + 6x + 9 = 0$.

7. Write $x^2 + 2 = 3x$ in zero form.

8. Solve $x^2 - 3x + 2 = 0$.

Practice continued

9. Are 2 and 6 the pair for $x^2 + 7x + 12$?

10. Why can dividing $x(x - 7) = 0$ by x be unsafe?

11. A square has area 49 cm^2. What is its side length?

12. A rectangle has width x and length $x + 1$, area 20 square units. Find its dimensions.

13. Does no integer factor pair mean no real roots?

14. Can $ab = 6$ justify $a = 0$ or $b = 0$?

Answers and explanations

Answer key - Maths · Grade 10

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1. -2 and -3.

$(x + 2)(x + 3) = 0$.

2. 3 and -2.

$(x - 3)(x + 2) = 0$.

3. 3 and -3.

Use $(x - 3)(x + 3)$.

4. 0 and -4.

Factor $x(x + 4)$.

5. 3 and $-1/2$.

$(2x + 1)(x - 3) = 0$.

6. -3, a repeated root.

The expression is $(x + 3)^2$.

7. $x^2 - 3x + 2 = 0$.

Subtract $3x$ from both sides.

8. 1 and 2.

$(x - 1)(x - 2) = 0$.

9. No.

Their sum is 8. Use 3 and 4 instead.

10. It loses the possible root 0.

Division assumes x is nonzero.

11. 7 cm.

The equation gives ± 7, but a physical side is positive.

12. 4 by 5 units.

$(x + 5)(x - 4) = 0$; reject -5.

13. No.

Roots may be irrational, as for $x^2 - 2 = 0$.

14. No.

The zero-product property requires the product to be zero.