Unit 7 · Quadratic Equation

HARDER WORKSHEET

Full marks 29

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 29

1 Work backwards [3]

Solve the following problem. Show your working.

One root of $x^2 - kx + 12 = 0$ is 3. Find k and the other root.

Answer: _____

2 Two equal roots [3]

Answer the following question. Show your working.

For which values of k does $x^2 + kx + 16 = 0$ have two equal roots? Find the root for each value.

Answer: _____

3 Fractions that hide a quadratic [3]

Solve the following equation. Show your working.

Solve $\frac{x}{x+1} + \frac{x+1}{x} = \frac{13}{6}$.

Answer: _____

4 A real setting [3]

Solve the following problem. Show your working.

A school garden is 16 m by 10 m. A path of the same width runs all round it, inside the edge, and leaves 72 m^2 of grass in the middle. How wide is the path?

Answer: _____

5 Two taps [4]

Solve the following problem. Show your working.

Two taps together fill a tank in 6 hours. The bigger tap alone fills it in 5 hours less than the smaller tap alone. How long does each tap take alone?

Answer: _____

6 Spot the error [3]

Find the mistakes in the working and correct them.

Ram solved $2x^2 - 3x - 5 = 0$ like this: $x = \frac{-3 \pm \sqrt{9 - 40}}{4}$. "The square root of a negative number is not real, so there are no real roots."

7 Is the claim true? [3]

Answer the following question. Give a reason.

Sita says her rectangular plot has a perimeter of 40 m and an area of 120 m^2. Can she be right?

8 Show it [2]

Answer the following question.

By completing the square, show that $x^2 + 2x + 5 = 0$ has no real root.

9 Numbers and digits [3]

Solve the following problem. Show your working.

In a two-digit number, the units digit is 3 more than the tens digit, and the product of the digits is 15 less than the number. Find every such number.

Answer:

10 Make your own [2]

Answer the following question.

Write a word problem about your school or home whose answer comes from $x^2 + x - 56 = 0$. Then solve it, and say which root your story keeps.