The City School

North Nazimabad Boys Campus

**Topic : Solutions Quadratic Word Problems**

**Teacher: Ms Sheema**

**Class 9**

sAns1: Determine the quadratic equation whose solutions are: 3 and −2.

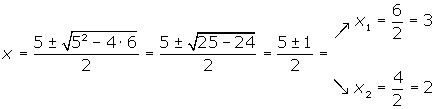
S = 3 − 2 = 1

P = 3 · 2 = 6

**x2 − x + 6 = 0**

ans 2:Factor:

Quadratic Equation Exercise

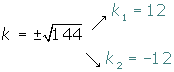


Quadratic Equation Solution

Ans 3:Determine the value of k so that the two roots of the equation x2 − kx + 36 = 0 are equal.

**b2 − 4ac = 0**

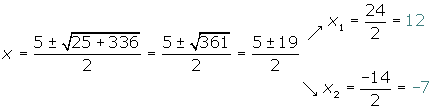
k2 − 4 · 36 = 0          k2 = 144



Ans 4: The sum of two numbers is 5 and their product is −84. Find these numbers.

**x2 − Sx + P = 0**

Quadratic Equation Exercise



Ans 5:Within 11 years, the age of Peter will be half the square of the age he was 13 years ago. Calculate the current age of Peter.

Current age flecha x

Age 13 years ago flecha x − 13

Age within 11 years flecha x + 11

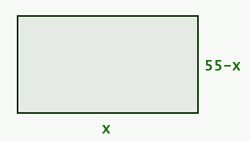
Quadratic Equation Operations

Quadratic Equation Operations

Quadratic Equation Solution

Current age flecha 21

Ans6: To fence a rectangular farm of 750 m², 110 m of fence has been used. Calculate the dimensions of the farm.



Semiperimeterflecha 55

Base flecha x

Height flecha 55 − x

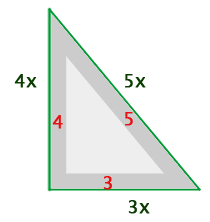
x · (55 − x) = 750

x2 − 55x + 750 = 0

x = 25      x = 30

The dimensions of the farm are **30 m and 25 m**.

Ans7: The three sides of a right-angled triangle are proportional to the numbers 3, 4 and 5. Find the length of each side knowing that the area of the triangle is 24 m².



1st side (base)flecha 3x

2nd side (height) flecha 4x

3rd side flecha 5x

Quadratic Equation Operations

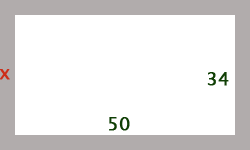
Quadratic Equation Solution

1st sideflecha **6 m**

2nd sideflecha **8 m**

3rd sideflecha **10 m**

Ans 8: A rectangular garden 50 m long and 34 m wide is surrounded by a uniform dirt road. Find the width of the road if the total area of the garden and road is 540 m².



(50 + 2x) · (34 + 2x) − 50 · 34 = 540

4x2 + 168x − 540 = 0        x2 + 42x − 135 = 0

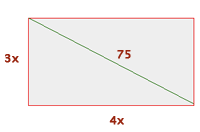
x = 3 and x = −45

The road width is **3 m**.

Ans9: Calculate the dimensions of a rectangle whose diagonal is 75 m, knowing that it is similar to a rectangle with sides measuring 36 m 48 m respectively.

Base flecha 48x : 12 = 4x

Height flecha 36x : 12 = 3x



(4x)2 + (3x)2 = 752

25x2 = 5625

x2 = 225      x = 15

Base flecha 4 · 15 = **60 m**

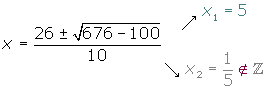
Height flecha 3 · 15 = **45 m**

Ans10: Find an integer number where the sum with its inverse is Fraction.

Quadratic Equation Operations

Quadratic Equation Operations

Quadratic Equation Operations



Ans11: Two natural numbers differ by two units and the sum of their squares is 580. What are these numbers?

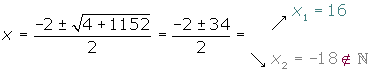
1st number flechax

2nd number flecha x + 2

Quadratic Equation Operations

Quadratic Equation Operations

Quadratic Equation Operations



1st number flecha**16**

2nd number flecha **18**

Ans12: Two taps A and B fill a swimming pool together in two hours. Alone, it takes tap A three hours less than B to fill the same pool. How many hours does it take each tap to fill the pool separately?

Time of A flecha x

Time of B flecha x + 3

A flecha Quadratic Equation Operations

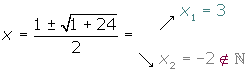
B flecha Quadratic Equation Operations

A and B flecha Quadratic Equation Operations

Quadratic Equation Operations

Quadratic Equation Operations

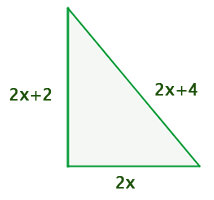
Quadratic Equation Operations



Time of A flecha **3 hours**

Time of B flecha **6 hours**

Q13: The length of the sides of a right-angled triangle are measured as three consecutive even numbers (in cm). Find the values of these sides.



1st leg flecha 2x

2nd leg flecha 2x + 2

Hypotenuse flecha 2x + 4

(2x)2 + (2x + 2)2 = (2x + 4)2

4x2 + 4x2 + 8x + 4 = 4x2 + 16x + 16

4x2 − 8x − 12 = 0         x2 − 2x − 3 = 0

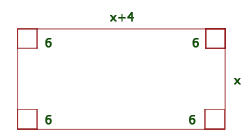
x = 3 y x= −1

1st legflecha **6 cm**

2nd leg flecha **8 cm**

Hypotenuse flecha**10 cm**

Ans14: A rectangular piece of cardboard is 4 cm longer than wide. A box of 840 cm³ is constructed by using this piece of cardboard. A square of 6 cm is cut out in every corner and the rims are folded upwards to create the box. Find the dimensions of the box.



6 (x − 12) · (x + 4 −12) = 840       (x − 12) · (x −8) = 140

x2 − 20x − 44 = 0    x = 22 y x= −2

The dimensions are: **26 cm and 22 cm.**

Ans15: 2 faucets can fill a tank in 1 hour and 20 minutes. The first faucet takes more than two hours longer to fill the same tank when functioning without the second tap. How long does it take to fill each one separately?

1st Time flecha x

2nd Time flecha x − 2

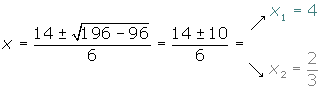
1º flecha Fraction

2ºflecha Fraction

Between the two flecha Fraction

Quadratic Equation Operations

Quadratic Equation Operations



1st Timeflecha 4 hours

2nd Time flecha 2 hours

Fraction is not a solution because the time for the second faucet would be negative.