



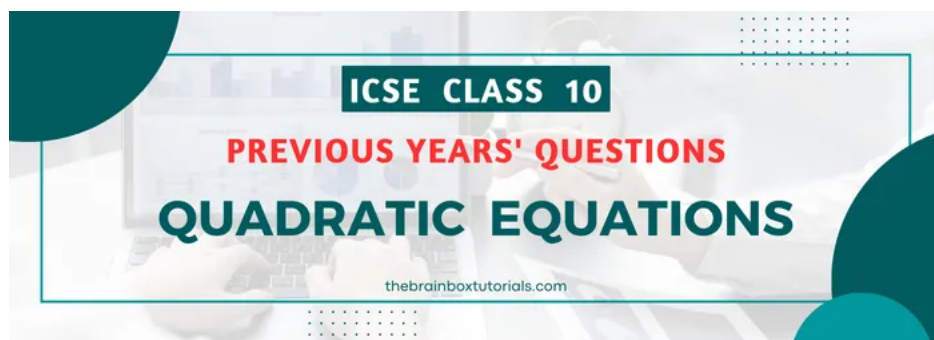
SAI International School

CBSE & IGSCCE Affiliated school in Bhubaneswar | Holistic Learning Experience

SAI International School

Apply Now

Menu



ICSE Class 10 Maths Previous Years Questions Chapter-Quadratic Equations

April 30, 2023 by [Priyanka Kabra](#)

One of the most important ways to prepare for the Board exams is by practicing the previous year papers. At our website, students can easily access the ICSE Class 10 Maths Previous Years Questions with solutions from 2010 to 2023. Scoring well in ICSE class 10 Math exam requires students to have a good understanding of the concepts and formulas. By solving these PYQs, students can get familiarized with the exam pattern and the types of questions asked in the exam. This can help them to approach the exam with confidence and reduce exam pressure.

ICSE Class 10 Maths Previous Years Questions with Solutions Chapter Quadratic Equations 2010 to 2023

The past year questions from Quadratic Equations available on our website are from the years 2023, 2022, 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011 and 2010. Each sum is solved in detail that helps students understand the marking pattern.

Moreover, practicing the ICSE Class 10 Maths Previous Years Questions Chapter- Quadratic Equations can be particularly beneficial for students. Quadratic Equations is an important topic in Maths and requires a good understanding of

formulas and concepts. By practicing the ICSE Class 10 Maths previous years questions related to Quadratic Equations students can get a good grasp of the topic and be better prepared for the exam.



India to Malaysia

India to Dub

from Rs5,517

[View Now](#)

from Rs16,999

[View Now](#)

ICSE Class 10 Maths Previous Years Questions Chapter-Quadratic Equations

The image shows a promotional graphic for 'ICSE Class 10 MATHEMATICS QUADRATIC EQUATIONS'. It features the 'BRAINBOX TUTORIALS' logo at the top, followed by the text 'ICSE Class 10 MATHEMATICS QUADRATIC EQUATIONS' in large, bold letters. Below this, it says 'All PYQs from 2010-2023' and 'Score 80/80' with a lightbulb icon. A woman is visible on the right side of the graphic. At the bottom, it says 'ICSE CLASS 10' and 'Page 1 / 5'.

Q1. Solve the following quadratic equation: $x^2 + 4x - 8 = 0$

Give your answer correct to one decimal place.
(Use mathematical tables if necessary.) [2023]

Answer: $x = 1.5, -5.5$

Step-by-step explanation:

$$x^2 + 4x - 8 = 0$$

comparing the above equation with $ax^2 + bx + c = 0$, we have,

$$a = 1, b = 4, c = -8$$

By Quadratic formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-4 \pm \sqrt{4^2 - 4 \times 1 \times (-8)}}{2 \times 1}$$

$$x = \frac{-4 \pm \sqrt{16 + 32}}{2}$$

$$x = \frac{-4 \pm \sqrt{48}}{2}$$

$$x = \frac{-4 \pm 6.928}{2}$$

$$x = \frac{-4 + 6.928}{2}, \frac{-4 - 6.928}{2}$$

$$x = \frac{2.928}{2}, \frac{-10.928}{2}$$

$$x = 1.464, -5.464$$

$$x = 1.5, -5.5$$

Q2. If 3 is a root of the quadratic equation $x^2 - px + 3 = 0$ then p is equal to:

(a) 4

(b) 3

(c) 5

(d) 2 [2023]

Answer: (a) 4

Step-by-step explanation:

$$x^2 - px + 3 = 0$$

Given, 3 is a root of the above equation.

Therefore,

$$(3)^2 - p \times 3 + 3 = 0$$

$$9 - 3p + 3 = 0$$

$$-3p + 12 = 0$$

$$-3p = -12$$

$$p = 4$$

Q3. One of the roots of the quadratic equation $x^2 - 8x + 5 = 0$ is 7.3166. The root of the equation correct to 4 significant figures is: [1]

(a) 7.3166

^

(b) 7.317

(c) 7.316

(d) 7.32 [2021 Semester-1]

Answer: (b) 7.317

Step-by-step explanation:

$$x^2 - 8x + 5 = 0$$

Given, 7.3166 is a root of the above equation.

Therefore,

The root of the equation correct to 4 significant figures is
7.317

Q4. Which of the following quadratic equations has 2 and 3 as its roots? [1]

(a) $x^2 - 5x + 6 = 0$ (b) $x^2 + 5x + 6 = 0$ (c) $x^2 - 5x - 6 = 0$ (d) $x^2 + 5x - 6 = 0$ [2021 Semester-1]Answer: (a) $x^2 - 5x + 6 = 0$

Step-by-step Explanation:

$$x^2 - 5x + 6 = 0$$

$$x^2 - 3x - 2x + 6 = 0$$

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

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

$$\text{Either } x - 3 = 0 \text{ OR } x - 2 = 0$$

$$\text{Therefore, } x = 3 \text{ OR } x = 2$$

Q5. Solve the following Quadratic Equation:

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

Give your answer correct to two decimal places. [2020]

Answer: $x = 6.54, 0.46$

Step-by-step Explanation:

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

Comparing the given equation with $ax^2 + bx + c = 0$ we have,

$$a = 1, b = -7, c = 3$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-7) \pm \sqrt{(-7)^2 - 4 \times 1 \times 3}}{2 \times 1}$$

$$x = \frac{7 \pm \sqrt{49 - 12}}{2}$$

$$x = \frac{7 \pm \sqrt{37}}{2}$$

$$x = \frac{7 \pm 6.083}{2}$$

$$x = \frac{7 + 6.083}{2}, \frac{7 - 6.083}{2}$$

$$x = \frac{13.083}{2}, \frac{0.917}{2}$$

$$x = 6.5416, 0.4585$$

$$x = 6.54, 0.46$$

Q6. Solve for x the quadratic equation $x^2 - 4x - 8 = 0$

Give your answer correct to three significant figures. [2019]

Answer: $x = 5.46, -1.46$

Step-by-step Explanation:

$$x^2 - 4x - 8 = 0$$

Comparing the given equation with $ax^2 + bx + c = 0$, we have,

$$a = 1, b = -4, c = -8$$

By formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \times 1 \times (-8)}}{2 \times 1}$$

$$x = \frac{4 \pm \sqrt{16 + 32}}{2}$$

$$x = \frac{4 \pm \sqrt{48}}{2}$$

$$x = \frac{4 \pm 6.928}{2}$$

$$x = \frac{4 + 6.928}{2}, \frac{4 - 6.928}{2}$$

$$x = \frac{10.928}{2}, \frac{-2.928}{2}$$

$$x = 5.464, -1.464$$

$$x = 5.46, -1.46$$

You can see video solution of these questions [here](#).

Q7. Solve $x^2 + 7x = 7$ and give your answer correct to two decimal places. [4] [2018]

Answer: 0.89 , -7.89

Step-by-step Explanation:

$$\begin{aligned}
 x^2 + 7x &= 7 \\
 x^2 + 7x - 7 &= 0 \\
 \text{Comparing the given equation with } ax^2 + bx + c &= 0, \text{ we have,} \\
 a = 1, b = 7, c &= -7 \\
 \text{By formula,} \\
 x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\
 x &= \frac{-7 \pm \sqrt{(7)^2 - 4 \times 1 \times (-7)}}{2 \times 1} \\
 x &= \frac{-7 \pm \sqrt{49 + 28}}{2} \\
 x &= \frac{-7 \pm \sqrt{77}}{2} \\
 x &= \frac{-7 \pm 8.775}{2} \\
 x &= \frac{-7 + 8.775}{2}, \frac{-7 - 8.775}{2} \\
 x &= \frac{1.775}{2}, \frac{-15.775}{2} \\
 x &= 0.8875, -7.8875 \\
 x &= 0.89, -7.89
 \end{aligned}$$

Q8. Find the value of k for which the following equation has equal roots. [3]

$$x^2 + 4kx + (k^2 - k + 2) = 0 \text{ [2018]}$$

Answer: k = -1 or 2/3

Step-by-step Explanation:

$$x^2 + 4kx + (k^2 - k + 2) = 0$$

Comparing the equation with $ax^2 + bx + c = 0$ we have,

$$a = 1, b = 4k, c = (k^2 - k + 2)$$

$$\text{Given, } b^2 - 4ac = 0$$

$$\text{Therefore, } (4k)^2 - 4 \times 1 \times (k^2 - k + 2) = 0$$

$$16k^2 - 4k^2 + 4k - 8 = 0$$

$$12k^2 + 4k - 8 = 0$$

$$4(3k^2 + k - 2) = 0$$

$$3k^2 + k - 2 = 0$$

$$3k^2 + 3k - 2k - 2 = 0$$

$$3k(k + 1) - 2(k + 1) = 0$$

$$(k + 1)(3k - 2) = 0$$

$$\text{Either } k + 1 = 0 \text{ or } 3k - 2 = 0$$

$$\text{Either } k = -1 \text{ or } \frac{2}{3}$$

Q9. Solve the equation $4x^2 - 5x - 3 = 0$ and give your answer correct to two decimal places. [4] [2017]

Answer: $x = 1.69, -0.44$

Step-by-step Explanation:

$$4x^2 - 5x - 3 = 0$$

Comparing the equation with $ax^2 + bx + c = 0$ we have,

$$a = 4, b = -5, c = -3$$

By formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4 \times 4 \times (-3)}}{2 \times 4}$$

$$x = \frac{5 \pm \sqrt{25 + 48}}{8}$$

$$x = \frac{5 \pm \sqrt{73}}{8}$$

$$x = \frac{5 \pm 8.544}{8}$$

$$x = \frac{5 + 8.544}{8}, \frac{5 - 8.544}{8}$$

$$x = \frac{13.544}{8}, \frac{-3.544}{8}$$

$$x = 1.693, -0.443$$

$$x = 1.69, -0.44$$

Q10. Solve the quadratic equation $x^2 - 3(x + 3) = 0$; Give your answer correct to two significant figures. [3] [2016]

Answer: $x = 5.9, -0.85$

Step-by-step Explanation:

^

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

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

Comparing the equation with $ax^2 + bx + c = 0$ we have,

$$a = 1, b = -3, c = -9$$

By formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4 \times 1 \times (-9)}}{2 \times 1}$$

$$x = \frac{3 \pm \sqrt{9 + 36}}{2}$$

$$x = \frac{3 \pm \sqrt{45}}{2}$$

$$x = \frac{3 \pm 6.708}{2}$$

$$x = \frac{3 + 6.708}{2}, \frac{3 - 6.708}{2}$$

$$x = \frac{9.708}{2}, \frac{-3.708}{2}$$

$$x = 4.854, -1.854$$

$$x = 4.9, -1.9$$

You can find ICSE Class 10 Maths Previous Years Questions with solution of each Chapter [here](#).

Q11. Find the value of 'K' for which x = 3 is a solution of the quadratic equation, $(K + 2)x^2 - Kx + 6 = 0$. Thus find the other root of the equation. [2015]

Answer: k= -4, other root = -1

Step-by-step Explanation:

$$(K + 2)x^2 - Kx + 6 = 0$$

$x = 3$ is a solution of the above equation.

Therefore,

$$(k + 2)(3)^2 - k \times 3 + 6 = 0$$

$$9k + 18 - 3k + 6 = 0$$

$$6k + 24 = 0$$

$$6k = -24$$

$$k = -4$$

putting $k = -4$ in the given equation,

$$-2x^2 + 4x + 6 = 0$$

$$-2(x^2 - 2x - 3) = 0$$

$$x^2 - 2x - 3 = 0$$

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

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

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

Either $x + 1 = 0$ or $x - 3 = 0$

$$x = -1 \text{ or } 3$$

So, other root of the equation is -1 .

^

Q12. Solve for x using the quadratic formula. Write your answer correct to two significant figures,

$$(x - 1)^2 - 3x + 4 = 0. [3] [2014]$$

Answer: 3.6 , 1.4

Step-by-step Explanation:

$$\begin{aligned}(x - 1)^2 - 3x + 4 &= 0 \\ \Rightarrow x^2 - 2x + 1 - 3x + 4 &= 0 \\ \Rightarrow x^2 - 5x + 5 &= 0 \\ \text{comparing the given equation with } ax^2 + bx + c &= 0, \text{ we have,} \\ a = 1, b = -5, c &= 5 \\ \text{By formula,} \\ x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ x &= \frac{-(-5) \pm \sqrt{(-5)^2 - 4 \times 1 \times 5}}{2 \times 1} \\ x &= \frac{5 \pm \sqrt{25 - 20}}{2} \\ x &= \frac{5 \pm \sqrt{5}}{2} \\ x &= \frac{5 \pm 2.24}{2} \\ x &= \frac{5 + 2.24}{2} \text{ or } \frac{5 - 2.24}{2} \\ x &= \frac{7.24}{2} \text{ or } \frac{2.76}{2} \\ x &= 3.62 \text{ or } 1.38 \\ x &= 3.6, 1.4\end{aligned}$$

Q13. Solve the following equation and calculate the answer correct to two decimal places:

$$x^2 - 5x - 10 = 0 [3] [2013]$$

Answer: 6.53 , -1.53

Step-by-step Explanation:

$$x^2 - 5x - 10 = 0$$

comparing the given equation with $ax^2 + bx + c = 0$, we have,

$$a = 1, b = -5, c = -10$$

By formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4 \times 1 \times (-10)}}{2 \times 1}$$

$$x = \frac{5 \pm \sqrt{25 + 40}}{2}$$

$$x = \frac{5 \pm \sqrt{65}}{2}$$

$$x = \frac{5 \pm 8.062}{2}$$

$$x = \frac{5 + 8.062}{2} \text{ or } \frac{5 - 8.062}{2}$$

$$x = \frac{13.062}{2} \text{ or } \frac{-3.062}{2}$$

$$x = 6.531 \text{ or } -1.531$$

$$x = 6.53, -1.53$$

Q14. Without solving the following quadratic equation, find the value of 'p' for which the given equation has real and equal roots: $x^2 + (p - 3)x + p = 0$ [2013]

Answer: $p = 1$ or 9

Step-by-step Explanation:

$$x^2 + (p - 3)x + p = 0$$

comparing the given equation with $ax^2 + bx + c = 0$, we have,

$$a = 1, b = (p - 3), c = p$$

$$\text{Given, } b^2 - 4ac = 0$$

$$\Rightarrow (p - 3)^2 - 4 \times 1 \times p = 0$$

$$\Rightarrow p^2 - 6p + 9 - 4p = 0$$

$$\Rightarrow p^2 - 10p + 9 = 0$$

$$\Rightarrow p^2 - 9p - p + 9 = 0$$

$$\Rightarrow p(p - 9) - 1(p - 9) = 0$$

$$\Rightarrow (p - 9)(p - 1) = 0$$

$$\text{Either } p - 9 = 0 \text{ OR } p - 1 = 0$$

$$p = 9 \text{ or } 1$$

Q15. Without solving the following quadratic equation, find the value of 'm' for which the given equation has real and equal roots.

$$x^2 + 2(m - 1)x + (m + 5) = 0 \text{ [3] [2012]}$$

Answer: $m = -1, 4$

Step-by-step Explanation:

^

$$x^2 + 2(m-1)x + (m+5) = 0$$

comparing the given equation with $ax^2 + bx + c = 0$

$$a = 1, b = 2(m-1), c = (m+5)$$

$$\text{given, } b^2 - 4ac = 0$$

$$[2(m-1)]^2 - 4 \times 1 \times (m+5) = 0$$

$$4(m^2 - 2m + 1) - 4m - 20 = 0$$

$$4m^2 - 8m + 4 - 4m - 20 = 0$$

$$4m^2 - 12m - 16 = 0$$

$$4(m^2 - 3m - 4) = 0$$

$$m^2 - 3m - 4 = 0$$

$$m^2 - 4m + m - 4 = 0$$

$$m(m-4) + 1(m-4) = 0$$

$$(m+1)(m-4) = 0$$

$$\text{Either } (m+1) = 0 \text{ or } (m-4) = 0$$

$$m = -1 \text{ or } 4$$

Q16. Solve the following equation and give your answer correct to 3 significant figures:

$$5x^2 - 3x - 4 = 0 \text{ [3] [2012]}$$

Answer: 1.24, -0.643

Step-by-step Explanation:

$$5x^2 - 3x - 4 = 0$$

comparing the given equation with $ax^2 + bx + c = 0$

$$a = 5, b = -3, c = -4$$

by quadratic formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4 \times 5 \times (-4)}}{2 \times 5}$$

$$x = \frac{3 \pm \sqrt{9 + 80}}{10}$$

$$x = \frac{3 \pm \sqrt{89}}{10}$$

$$x = \frac{3 \pm 9.434}{10}$$

$$x = \frac{3 + 9.434}{10}, \frac{3 - 9.434}{10}$$

$$x = \frac{12.434}{10}, \frac{-6.434}{10}$$

$$x = 1.2434, -0.6434$$

$$x = 1.24, -0.643$$

India to Dubai

from India

from Rs1

View Nc

Australia to Bangkok

from Australia

from Rs1

View Nc

India to Khon Kaen

from India

from Rs2

View Nc

Q17. Solve the following equation:

$$x - \frac{18}{x} = 6$$

Give your answer correct to two significant figures. [3] [2011]

Answer: 8.2 , -2.2

Step-by-step Explanation:

$$x - \frac{18}{x} = 6$$

$$\Rightarrow \frac{x^2 - 18}{x} = 6$$

$$\Rightarrow x^2 - 18 = 6x$$

$$\Rightarrow x^2 - 6x - 18 = 0$$

comparing the given equation with $ax^2 + bx + c = 0$

$$a = 1, b = -6, c = -18$$

by quadratic formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4 \times 1 \times (-18)}}{2 \times 1}$$

$$x = \frac{6 \pm \sqrt{36 + 72}}{2}$$

$$x = \frac{6 \pm \sqrt{108}}{2}$$

$$x = \frac{6 \pm 10.392}{2}$$

$$x = \frac{6 + 10.392}{2}, \frac{6 - 10.392}{2}$$

$$x = \frac{16.392}{2}, \frac{-4.392}{2}$$

$$x = 8.196, -2.196$$

$$x = 8.2, -2.2$$

Q18. Without solving the following quadratic equation, find the value of 'p' for which the roots are equal. $px^2 - 4x + 3 = 0$ [3] [2010]

Answer: $p = 4/3$

Step-by-step Explanation:

$$px^2 - 4x + 3 = 0$$

comparing the above equation with $ax^2 + bx + c = 0$, we have,

$$a = p, b = -4, c = 3$$

$$\text{given, } b^2 - 4ac = 0$$

$$(-4)^2 - 4 \times p \times 3 = 0$$

$$16 - 12p = 0$$

$$-12p = -16$$

$$p = \frac{16}{12}$$

$$p = \frac{4}{3}$$

Q19. A man covers a distance of 100 km, travelling with a uniform speed of x km/hr. Had the speed been 5 km/hr more it would have taken 1 hour less. Find x the original speed. [2023]

Answer: 20 km/h

Step-by-step Explanation:

Original speed = x km/hr

Distance = 100 km

Therefore, Time taken = $100/x$ hr

Now, if speed = $(x+5)$ km/hr

Then, by the problem,

$$\frac{100}{x+5} = \frac{100}{x} - 1$$

$$\Rightarrow \frac{100}{x+5} - \frac{100}{x} = -1$$

$$\Rightarrow \frac{100x - 100(x+5)}{x(x+5)} = -1$$

$$\Rightarrow \frac{100x - 100x - 500}{x^2 + 5x} = -1$$

$$\Rightarrow -500 = -x^2 - 5x$$

$$\Rightarrow x^2 + 5x - 500 = 0$$

$$\Rightarrow x^2 + 25x - 20x - 500 = 0$$

$$\Rightarrow x(x+25) - 20(x+25) = 0$$

$$\Rightarrow (x+25)(x-20) = 0$$

$$\text{either } (x+25) = 0 \text{ or } (x-20) = 0$$

$$x = -25 \text{ or } 20$$

As speed cannot be negative, therefore

original speed is 20 km/h

Q20. The difference of two natural numbers is 7 and their product is 450. Find the numbers. [2020]

Answer: 18 and 25

Step-by-step Explanation:

Let the two numbers be x and $(x-7)$.

by the problem,

$$x(x-7) = 450$$

$$\text{or, } x^2 - 7x - 450 = 0$$

$$\text{or, } x^2 - 25x + 18x - 450 = 0$$

$$\text{or, } x(x - 25) + 18(x - 25) = 0$$

$$\text{or, } (x - 25)(x + 18) = 0$$

$$\text{Either } (x - 25) = 0 \text{ or } (x + 18) = 0$$

$$x = 25 \text{ or } -18$$

As natural numbers cannot be negative, therefore

One number is 25 and

the other number is $(25-7) = 18$.

Q21. The product of two consecutive natural numbers which are multiples of 3 is equal to 810. Find the two numbers. [3] [2019]

Answer: 27 and 30

Step-by-step Explanation:

Let the two numbers be $3x$ and $3(x+1)$.

by the problem,

$$\begin{aligned}
3x \times 3(x+1) &= 810 \\
\Rightarrow 3x(3x+3) &= 810 \\
\Rightarrow 9x^2 + 9x &= 810 \\
\Rightarrow 9(x^2 + x) &= 810 \\
\Rightarrow x^2 + x &= 90 \\
\Rightarrow x^2 + x - 90 &= 0 \\
\Rightarrow x^2 + 10x - 9x - 90 &= 0 \\
\Rightarrow x(x+10) - 9(x+10) &= 0 \\
\Rightarrow (x+10)(x-9) &= 0 \\
\text{either } (x+10) = 0 &\text{ or } (x-9) = 0 \\
x = -10 &\text{ or } 9
\end{aligned}$$

As natural numbers cannot be negative, therefore,

$$x = 9$$

Therefore the two numbers are $3x = 27$ and

$$3(x+1) = 30$$

You can see video solutions to these questions [here](#).

Q22. ₹ 7500 were divided equally among a certain number of children. Had there been 20 less children, each would have received ₹ 100 more. Find the original number of children. [2018]

Answer: 50

Step-by-step Explanation:

Let the original number of children be x .

Each child gets Rs. $\frac{7500}{x}$.

By the problem,

$$\begin{aligned}
\frac{7500}{x-20} - \frac{7500}{x} &= 100 \\
\Rightarrow \frac{7500x - 7500(x-20)}{x(x-20)} &= 100 \\
\Rightarrow \frac{7500x - 7500x + 150000}{x^2 - 20x} &= 100 \\
\Rightarrow 100x^2 - 2000x &= 150000 \\
\Rightarrow 100x^2 - 2000x - 150000 &= 0 \\
\Rightarrow 100(x^2 - 20x - 1500) &= 0 \\
\Rightarrow x^2 - 20x - 1500 &= 0 \\
\Rightarrow x^2 - 50x + 30x - 1500 &= 0 \\
\Rightarrow x(x-50) + 30(x-50) &= 0 \\
\Rightarrow (x+30)(x-50) &= 0 \\
\text{either } (x+30) = 0 &\text{ or } (x-50) = 0 \\
x = -30 &\text{ or } 50
\end{aligned}$$

As number of children cannot be negative, therefore,

$$x = 50.$$

Therefore, original number of children is 50.

Q23. Two cars X and Y use 1 litre of diesel to travel x km and $(x + 3)$ km respectively. If both the cars covered a distance of 72 km, then:

i. The number of litres of diesel used by car X is: [1]

(a) $\frac{72}{x-3}$ litres

(b) $\frac{72}{x+3}$ litres

(c) $\frac{72}{x}$ litres

(d) $\frac{12}{x}$ litres

ii. The number of litres of diesel used by car Y is: [1]

(a) $\frac{72}{x-3}$ litres

(b) $\frac{72}{x+3}$ litres

(c) $\frac{72}{x}$ litres

(d) $\frac{12}{x+3}$ litres

iii. If car X used 4 litres of diesel more than car Y in the journey, then: [1]

(a) $\frac{72}{x-3} - \frac{12}{x} = 4$

(b) $\frac{72}{x+3} - \frac{72}{x} = 4$

(c) $\frac{72}{x} - \frac{72}{x+3} = 4$

(d) $\frac{72}{x-3} - \frac{72}{x+3} = 4$

iv. The amount of diesel used by the car X is: [1]

(a) 6 litres

(b) 12 litres

(c) 18 litres

(d) 24 litres [2021 Semester-1]

Answer: i. (c) , ii. (b) , iii. (c) , iv. (b)

Step-by-step Explanation:

$$\begin{aligned}
 &\text{By the problem,} \\
 &\frac{72}{x} - \frac{72}{x+3} = 4 \\
 \Rightarrow &\frac{72(x+3) - 72x}{x(x+3)} = 4 \\
 \Rightarrow &\frac{72x + 216 - 72x}{x^2 + 3x} = 4 \\
 \Rightarrow &4x^2 + 12x = 216 \\
 \Rightarrow &4x^2 + 12x - 216 = 0 \\
 \Rightarrow &4(x^2 + 3x - 54) = 0 \\
 \Rightarrow &x^2 + 3x - 54 = 0 \\
 \Rightarrow &x^2 + 9x - 6x - 54 = 0 \\
 \Rightarrow &x(x+9) - 6(x+9) = 0 \\
 \Rightarrow &(x+9)(x-6) = 0 \\
 &\text{either } (x+9) = 0 \text{ or } (x-6) = 0 \\
 &x = -9 \text{ or } 6 \\
 &\text{therefore,} \\
 &x = 6 \text{ litres.}
 \end{aligned}$$

Therefore, The amount of diesel used by the car X is

$$\begin{aligned}
 \frac{72}{x} &= \frac{72}{6} = 12 \text{ litres.} \\
 &\text{option (b).}
 \end{aligned}$$

Q24. The sum of the ages of Vivek and his younger brother Amit is 47 years. The product of their ages in years is 550. Find their ages. [4] [2017]

Answer: 25 years, 22 years

Step-by-step Explanation:

Let the age of Vivek be x years and that of his younger brother be (47-x) years.

By the problem,

$$x(47 - x) = 550$$

$$\text{or, } 47x - x^2 = 550$$

$$\text{or, } x^2 - 47x + 550 = 0$$

$$\text{or, } x^2 - 25x - 22x + 550 = 0$$

$$\text{or, } x(x - 25) - 22(x - 25) = 0$$

$$\text{or, } (x - 25)(x - 22) = 0$$

$$\text{either } (x - 25) = 0 \text{ or } (x - 22) = 0$$

$$x = 25 \text{ or } 22$$

Therefore, Vivek's age is 25 years and his younger brother's age is 22 years.

Q25. A bus covers a distance of 240 km at a uniform speed. Due to heavy rain its speed gets reduced by 10 km/h and as such it takes two hours longer to cover the total distance. Assuming the uniform speed to be 'x' km/h, form an equation and solve it to evaluate 'x'. [3] [2016]

Answer: 40 km/h

Step-by-step Explanation:

$$\begin{aligned}
 \text{Uniform speed} &= x \text{ km/h} \\
 \text{distance} &= 240 \text{ km} \\
 \text{time} &= \frac{\text{Distance}}{\text{speed}} = \frac{240}{x} \text{ hours} \\
 \text{Due to heavy rain speed} &= (x - 10) \text{ km/h} \\
 \text{Now time} &= \frac{240}{x - 10} \text{ hours} \\
 \text{By the problem,} \\
 \frac{240}{x - 10} - \frac{240}{x} &= 2 \\
 \Rightarrow \frac{240x - 240(x - 10)}{x(x - 10)} &= 2 \\
 \Rightarrow \frac{240x - 240x + 2400}{x^2 - 10x} &= 2 \\
 \Rightarrow 2x^2 - 20x &= 2400 \\
 \Rightarrow 2x^2 - 20x - 2400 &= 0 \\
 \Rightarrow 2(x^2 - 10x - 1200) &= 0 \\
 \Rightarrow x^2 - 10x - 1200 &= 0 \\
 \Rightarrow x^2 - 40x + 30x - 1200 &= 0 \\
 \Rightarrow x(x - 40) + 30(x - 40) &= 0 \\
 \Rightarrow (x - 40)(x + 30) &= 0 \\
 \text{either } (x - 40) = 0 \text{ or } (x + 30) &= 0 \\
 x &= 40 \text{ or } -30 \\
 \text{As speed cannot be negative, therefore,} \\
 x &= 40 \\
 \text{Therefore, speed of bus is } &40 \text{ km/h.}
 \end{aligned}$$

Q26. Sum of two natural numbers is 8 and the difference of their reciprocal is 2 / 15. Find the numbers. [3] [2015]

Answer: 3 and 5

Step-by-step Explanation:

Let the two natural numbers be x and (8-x).

Now, by the problem,

$$\begin{aligned}\frac{1}{x} - \frac{1}{8-x} &= \frac{2}{15} \\ \Rightarrow \frac{8-x-x}{x(8-x)} &= \frac{2}{15} \\ \Rightarrow \frac{8-2x}{8x-x^2} &= \frac{2}{15} \\ \Rightarrow 120 - 30x &= 16x - 2x^2 \\ \Rightarrow 2x^2 - 46x + 120 &= 0 \\ \Rightarrow 2(x^2 - 23x + 60) &= 0 \\ \Rightarrow x^2 - 23x + 60 &= 0 \\ \Rightarrow x^2 - 3x - 20x + 60 &= 0 \\ \Rightarrow x(x-3) - 20(x-3) &= 0 \\ \Rightarrow (x-3)(x-20) &= 0 \\ \text{either } (x-3) = 0 \text{ or } (x-20) &= 0 \\ x = 3, 20 \\ 20 \text{ is not possible.}\end{aligned}$$

Therefore, the two numbers are 3 and $(8-3) = 5$.

Q27. A two digit positive number is such that the product of its digits is 6. If 9 is added to the number, the digits interchange their places. Find the number. [4] [2014]

Answer: 23

Step-by-step Explanation:

Let the tens' digit be x and unit's digit be $\frac{6}{x}$.

Therefore the two digit number $= 10x + \frac{6}{x}$.

According to the problem,

$$10x + \frac{6}{x} + 9 = (10 \times \frac{6}{x}) + x$$

$$\Rightarrow 10x + \frac{6}{x} - \frac{60}{x} - x = -9$$

$$\Rightarrow \frac{10x^2 + 6 - 60 - x^2}{x} = -9$$

$$\Rightarrow 9x^2 - 54 = -9x$$

$$\Rightarrow 9x^2 + 9x - 54 = 0$$

$$\Rightarrow 9(x^2 + x - 6) = 0$$

$$\Rightarrow x^2 + x - 6 = 0$$

$$\Rightarrow x^2 + 3x - 2x - 6 = 0$$

$$\Rightarrow x(x + 3) - 2(x + 3) = 0$$

$$\Rightarrow (x + 3)(x - 2) = 0$$

$$\text{Either } (x + 3) = 0 \text{ or } (x - 2) = 0$$

$$x = -3, 2$$

since number is positive, therefore

$$x = 2$$

Therefore the two - digit number is

$$10x + \frac{6}{x}$$

$$20 + \frac{6}{2}$$

$$23.$$

Q28. A shopkeeper purchases a certain number of books for Rs. 960. If the cost per book was 8 less, the number of books that could be purchased for Rs. 960 would be 4 more. Write an equation, taking the original cost of each book to be Rs. x , and solve it to find the original cost of the books.[4] [2013]

Answer: Rs. 48

Step-by-step Explanation:

original cost of each book is Rs x .

$$\text{Then, the no. of books} = \frac{960}{x}.$$

$$\text{Also, cost of each books} = \text{Rs } (x - 8)$$

Therefore, by the problem,

$$\frac{960}{x - 8} - \frac{960}{x} = 4$$

$$\Rightarrow \frac{960x - 960(x - 8)}{x(x - 8)} = 4$$

$$\Rightarrow \frac{960x - 960x + 7680}{x^2 - 8x} = 4$$

$$\Rightarrow 4x^2 - 32x = 7680$$

$$\Rightarrow 4x^2 - 32x - 7680 = 0$$

$$\Rightarrow x^2 - 8x - 1920 = 0$$

$$\Rightarrow x^2 + 40x - 48x - 1920 = 0$$

$$\Rightarrow (x - 48)(x + 40) = 0$$

$$\text{Either } x - 48 = 0 \text{ or } x + 40 = 0$$

$$x = 48 \text{ or } -40$$

$$\therefore \text{Original cost of book} = \text{Rs } 48.$$

Hyderabad to Singapore

from Hyderabad

from Rs1

View Nc

India to Dubai

from India

from Rs1

View Nc

India to Khon Kaen

from India

from Rs2

View Nc

Q29. A car covers a distance of 400 km at a certain speed. Had the speed been 12 km/h more, the time taken for the journey would have been 1 hour 40 minutes less. Find the original speed of the car. [4] [2012]

Answer: 48 km/h

Step-by-step Explanation:

Let the original speed be x km/h.

$$\text{Then Time} = \frac{400}{x} \text{ hrs}$$

If speed = $x + 12$, then

$$\text{Time} = \frac{400}{x + 12}$$

By the problem,

$$\frac{400}{x} - \frac{400}{x + 12} = 1 \text{ hr} + \frac{40}{60}$$

$$\Rightarrow \frac{400(x + 12) - 400x}{x(x + 12)} = \frac{5}{3}$$

$$\Rightarrow \frac{400x + 4800 - 400x}{x^2 + 12x} = \frac{5}{3}$$

$$\Rightarrow 5x^2 + 60x = 14400$$

$$\Rightarrow 5x^2 + 60x - 14400 = 0$$

$$\Rightarrow x^2 + 12x - 2880 = 0$$

$$\Rightarrow x^2 + 60x - 48x - 2880 = 0$$

$$\Rightarrow x(x + 60) - 48(x + 60) = 0$$

$$\Rightarrow (x + 60)(x - 48) = 0$$

$$\text{Either } x + 60 = 0 \text{ or } x - 48 = 0$$

$$x = -60 \text{ or } 48$$

Speed cannot be negative. therefore,
speed of the car is 48 km/h.

Q30. Rs.480 is divided equally among 'x' children. If the number of children was 20 more, then each would have got Rs. 12 less. Find 'x'. [3] [2011]

Answer: 20

Step-by-step Explanation:

Given, Number of children = x

Therefore, money received by each child = Rs. $\frac{480}{x}$

Now, if Number of children = $x + 20$, then,

by the problem,

$$\frac{480}{x} - \frac{480}{x + 20} = 12$$

$$\Rightarrow \frac{480(x + 20) - 480x}{x(x + 20)} = 12$$

$$\Rightarrow \frac{480x + 9600 - 480x}{x^2 + 20x} = 12$$

$$\Rightarrow 12x^2 + 240x = 9600$$

$$\Rightarrow x^2 + 20x - 800 = 0$$

$$\Rightarrow x^2 + 40x - 20x - 800 = 0$$

$$\Rightarrow x(x + 40) - 20(x + 40) = 0$$

$$\Rightarrow (x + 40)(x - 20) = 0$$

$$\text{Either } x + 40 = 0 \text{ or } x - 20 = 0$$

$$x = -40 \text{ or } 20.$$

Children cannot be in negative.

Therefore, number of children is 20.

Q31. A positive number is divided into two parts such that the sum of the squares of the two parts is 20. The square of the larger part is 8 times the smaller part. Taking x as the smaller part of the two parts, find the number. [4] [2010]

Answer: 6

Step-by-step Explanation:

Let smaller part be x .

Then, $(\text{larger part})^2 = 8x$ Therefore, larger part $= \sqrt{8x}$

By the problem,

$$x^2 + 8x = 20$$

$$\Rightarrow x^2 + 8x - 20 = 0$$

$$\Rightarrow x^2 + 10x - 2x - 20 = 0$$

$$\Rightarrow x(x + 10) - 2(x + 10) = 0$$

$$\Rightarrow (x + 10)(x - 2) = 0$$

$$\text{Either } (x + 10) = 0 \text{ or } (x - 2) = 0$$

$$x = -10 \text{ or } 2.$$

*As the number is positive, therefore,
smaller part is 2 and*

$$\text{larger part is } \sqrt{8 \times 2} = 4$$

Therefore the number is $4 + 2 = 6$.

Subscribe to my YouTube channel for more such educational content.



The Brainbox Tutorials

YouTube 44K

■ [Uncategorized](#)

🔖 [ICSE10, PYQs, Quadratic Equations](#)

< [ICSE Class 10 Maths Previous Years Questions Chapter-Factorisation](#)

> [ICSE Class 10 Maths Probability Previous Years Questions](#)


Leave a Comment

Name *

Email *

☐ Save my name, email, and website in this browser for the next time I comment.[Post Comment](#)

The Brainbox tutorials is an online learning platform filled with educational and motivational content. ICSE and CBSE study materials, sample papers, online tests, latest educational news, quiz helpful for high school students and for competitive exams.



India to Malaysia
from India
from Rs5,517 [View Now](#)

India to China
from India
from Rs21,787 [View Now](#)

India to Khon Kaen
from India
from Rs21,974 [View Now](#)

India to Dubai
from India
from Rs16,999 [View Now](#)

Australia to Bangkok
from Australia
from Rs19,122 [View Now](#)

Follow Us



Latest Posts

[ICSE 10 Physics Competency Based Questions Solution- Very Short Answer Questions](#)

[ICSE Physics Competency Based Questions Solution- Multiple Choice Questions](#)

[ICSE 10 Chemistry Competency Focused Practice Questions Solution- Long Answer Questions](#)

[ICSE 10 Chemistry Competency Focused Practice Questions Solution- Short Answer Questions](#)

[ICSE Chemistry Competency Focused Practice Questions Solution- Very Short Answer Questions](#)



India to Dubai

from India

from Rs16,999

View Now

India to Malaysia

from India

from Rs5,517

View Now

India to Thailand

from India

fr

India to Dubai

from India

fr

India to Khon Kaen

from India

fr

from India

from Rs5,517

[View Now](#)

Sample Papers

[CBSE 6](#)

[CBSE 7](#)

[CBSE 8](#)

[CBSE 9](#)

[CBSE 10](#)

[ICSE 6](#)

[ICSE 7](#)

[ICSE 8](#)

[ICSE 9](#)

[ICSE 10](#)

MATHS Chapter-wise MCQs

[CBSE 6](#)

[CBSE 7](#)

[CBSE 8](#)

[CBSE 9](#)

[CBSE 10](#)

[ICSE 6](#)

[ICSE 7](#)

[ICSE 8](#)

[ICSE 9](#)

[ICSE 10](#)

Important BOOKS

[CBSE 6](#)

[CBSE 7](#)

[CBSE 8](#)

[CBSE 9](#)

[CBSE 10](#)

[ICSE 6](#)

[ICSE 7](#)

[ICSE 8](#)

[ICSE 9](#)

[ICSE 10](#)

Important VIDEO Lessons

[CBSE 6 Maths](#)

[CBSE 7 Maths](#)

[CBSE 8 Maths](#)



[CBSE 9 Maths](#)

[CBSE 10 Maths](#)

[ICSE 6 Maths](#)

[ICSE 7 Maths](#)

[ICSE 8 Maths](#)

[ICSE 9 Maths](#)

[ICSE 10 Maths](#)

CBSE 9 Science

CBSE 10 Science

ICSE 9 Physics

[ICSE 10 Physics](#)

Board Exams Solution

[ICSE 10](#)

[CBSE 10](#)

Subscribe for more!



The Brainbox Tutorials

YouTube

44K

Email address:

First Name

[Sign up](#)

[Contact](#) [Privacy Policy](#) [Full Disclaimer](#) [Affiliate Disclosure](#)

© 2024 The Brainbox Tutorials • Built with [GeneratePress](#)

