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1. Find the value of p for which the quadratic equation $2x^2 + px + \frac{9}{2} = 0$ has real and equal roots.
2. Solve for x: $9x^2 - 6a^2x + (a^4 - b^4) = 0$
3. Solve for x by the method of completing squares: $2x^2 + x - 4 = 0$
4. Solve for x: $\frac{1}{2x-3} + \frac{1}{x-5} = 1$, $x \neq \frac{3}{2}, 5$
5. A vehicle travels at a certain average speed for a distance of 63 km and then travels a distance of 72 km at an average speed of 6 km/h more than its original speed. If it takes 3 hours to complete the total journey, what is the original average speed?
6. Find the roots of the quadratic equation $6x^2 + 7x - 5 = 0$
7. Solve the following equation for x: $\frac{4}{x} - \frac{5}{2x+3} = 3$
8. The sum of first n even natural numbers is given by the relation $S = n(n + 1)$. Find n, if the sum is 420.
9. In a class test, the sum of the marks obtained by X in mathematics and science is 28. Had he got 3 marks more in mathematics and 4 marks less in science, the product of the marks obtained in two subjects would have been 180. Find the marks obtained by him in two subjects separately.
10. The sum of the areas of two squares is 640 m^2. If the difference in their perimeters is 64 m, find the sides of two squares.