

Intermediate Algebra Skill

Solving Quadratic Form Equations: Substituting a Variable for a Quantity

Solve the following equations:

1) $(n^2 + 2n)^2 - 14(n^2 + 2n) - 15 = 0$

2) $(n^2 - 3n)^2 - 8(n^2 - 3n) - 20 = 0$

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

4) $(3u^2 + 2u)^2 - 13(3u^2 + 2u) + 40 = 0$

5) $6(3p + 2)^2 - 7(3p + 2) - 20 = 0$

6) $12(2p - 1)^2 + 13(2p - 1) + 3 = 0$

7) $(3 + \sqrt{x})^2 + 3(3 + \sqrt{x}) - 10 = 0$

8) $(1 + \sqrt{x})^2 - 5(1 + \sqrt{x}) + 6 = 0$

9) $(3 - \sqrt{x})^2 - 10(3 - \sqrt{x}) + 23 = 0$

10) $(5 + \sqrt{x})^2 - 14(5 + \sqrt{x}) + 33 = 0$

11) $\left(x - \frac{6}{x}\right)^2 - 6\left(x - \frac{6}{x}\right) + 5 = 0$

12) $\left(x - \frac{18}{x}\right)^2 - 4\left(x - \frac{18}{x}\right) - 21 = 0$

13) $\left(1 - \frac{1}{y-1}\right)^2 + 2\left(1 - \frac{1}{y-1}\right) - 15 = 0$

14) $\left(1 + \frac{1}{y+2}\right)^2 - 6\left(1 + \frac{1}{y+2}\right) + 8 = 0$

Answers to Solving Quadratic Form Equations: Substituting a Variable for a Quantity

- 1) $-5, 3, -1$
- 2) $5, -2, 1, 2$
- 3) $-\frac{1}{2}, -1, 1, \frac{3}{2}$
- 4) $-\frac{5}{3}, -2, 1, \frac{4}{3}$
- 5) $-\frac{10}{9}, \frac{1}{6}$
- 6) $\frac{1}{3}, \frac{1}{8}$
- 7) $\emptyset$
- 8) $\pm 1, \pm \sqrt{2}$
- 9) $\emptyset$
- 10) $\pm \sqrt{6}$
- 11) $-2, -1, 3, 6$
- 12) $-6, -2, 3, 9$
- 13) $\frac{7}{6}, \frac{1}{2}$
- 14) $-\frac{5}{3}, -1$