

Q1P6 - Ref. Ch. 2-4 & 2-5.

Date _____ Period _____

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Solve each equation by completing the square. Check ALL rational solutions. If solutions are irrational or complex, check at least the POSITIVE CONJUGATE.

1) $n^2 - 20n + 85 = -6$

2) $k^2 + 18k - 83 = 5$

3) $r^2 - 8r + 21 = 6$

4) $p^2 + 12p - 34 = -8$

5) $m^2 + 16m - 10 = 7$

6) $x^2 - 12x - 4 = 2$

7) $a^2 + 17a - 8 = 10$

8) $n^2 - 11n - 43 = 8$

9) $n^2 - 19n + 82 = 4$

10) $v^2 + 7v - 39 = -9$

11) $6v^2 = -12v + 82$

12) $9x^2 + 8 = 18x$

13) $2p^2 = -20p + 22$

14) $5x^2 = -10x + 32$

15) $6n^2 - 48 = 12n$

16) $8k^2 = -16k - 6$

17) $7n^2 - 14n = 56$

18) $3x^2 + 18x = 46$

19) $7n^2 - 20n = 68$

20) $0 = -10n^2 - 2n + 12$

21) $4r^2 - 6r = 13$

22) $2x^2 = -1 - 6x$

Solve each equation by completing the square. Watch for complex solutions. Check ALL rational solutions. If solutions are irrational or complex, check at least the POSITIVE CONJUGATE.

23) $-v^2 + 14v - 54 = -8v^2 + 2$

24) $12x^2 + 18x - 7 = 3x^2$

25) $8x^2 - 16x = -99$

26) $6a^2 - 16a - 44 = -4a + 8$

27) $10n^2 - 10n = -95 + 10n$

28) $-49 = 16b - 1 - 4b^2$

29) $-79 = 8x - 4x^2$

30) $57 + 11k = -5k - 8 - 8k^2$

31) $7n^2 + 13n = -2n - 63$

32) $11b = -2b^2 + 40$

33) $13k^2 + 18k + 57 = 2k + 10k^2$

34) $3r^2 + 12 = -20r$

35) $12 - 2m = -4 - 2m^2$

36) $74 = -7a^2 + 2 - 4a$

37) $9n^2 - 18n + 2 = -9n$

38) $-69 + 24k = -2k^2 + 10k + 1$

Answers to Q1P6 - Ref. Ch. 2-4 & 2-5. (ID: 1)

$$1) \{13, 7\}$$

$$9) \{13, 6\}$$

$$3) \{5, 3\}$$

$$11) \left\{ \frac{-3 + 2\sqrt{33}}{3}, \frac{-3 - 2\sqrt{33}}{3} \right\}$$

$$5) \{1, -17\}$$

$$13) \{1, -11\}$$

$$7) \{1, -18\}$$

$$15) \{4, -2\}$$

$$17) \{4, -2\}$$

$$19) \left\{ \frac{34}{7}, -2 \right\}$$

$$21) \left\{ \frac{3 + \sqrt{61}}{4}, \frac{3 - \sqrt{61}}{4} \right\}$$

$$23) \{2, -4\}$$

$$25) \left\{ \frac{4 + i\sqrt{182}}{4}, \frac{4 - i\sqrt{182}}{4} \right\}$$

$$27) \left\{ \frac{2 + i\sqrt{34}}{2}, \frac{2 - i\sqrt{34}}{2} \right\}$$

$$29) \left\{ \frac{2 + \sqrt{83}}{2}, \frac{2 - \sqrt{83}}{2} \right\}$$

$$31) \left\{ \frac{-15 + 9i\sqrt{19}}{14}, \frac{-15 - 9i\sqrt{19}}{14} \right\}$$

$$33) \left\{ \frac{-8 + i\sqrt{107}}{3}, \frac{-8 - i\sqrt{107}}{3} \right\}$$

$$35) \left\{ \frac{1 + i\sqrt{31}}{2}, \frac{1 - i\sqrt{31}}{2} \right\}$$

$$37) \left\{ \frac{2}{3}, \frac{1}{3} \right\}$$