Math 2 Name_____

Unit 4.5 Quadratic Equations with Complex numbers Examples

Solve each equation with the quadratic formula.

1) $7n^2 + 6n + 5 = 0$

2) $k^2 + 2k + 6 = 0$

3) $4n^2 - 9n + 9 = 0$

4) $12x^2 + 3 = 0$

5) $-4x^2 - 12 = -8$

6) $-11a^2 - 4 = 8$

7) $-7x^2 = 11$

8) $12x^2 + 5 = 0$

9) $12v^2 + 3 - 3v = -3v - 4$

10) $-12x^2 + 7x - 8 = -3$

11) $-10p^2 + p - 7 = 0$

12) $-5v^2 - 9v - 12 = 0$

13) $-11k^2 + 4k - 5 = 0$

14) $-12n^2 + n - 9 = 0$

15) $6n^2 + 8n + 16 = 10$

16) $6x^2 + 5x - 1 = -6$

17) $9x^2 = -5 - 10x$

18) $5k^2 + 5 = -6k$

19) $-12x^2 - 9x = -9x + 1$

20) $-11m^2 - 3 = -7m^2$

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Unit 4.5 Quadratic Equations with Complex numbers Examples

Solve each equation with the quadratic formula.

1) $7n^2 + 6n + 5 = 0$

$\left\{\frac{-3 + i\sqrt{26}}{7}, \frac{-3 - i\sqrt{26}}{7}\right\}$

2) $k^2 + 2k + 6 = 0$

$\left\{-1 + i\sqrt{5}, -1 - i\sqrt{5}\right\}$

3) $4n^2 - 9n + 9 = 0$

$\left\{\frac{9 + 3i\sqrt{7}}{8}, \frac{9 - 3i\sqrt{7}}{8}\right\}$

4) $12x^2 + 3 = 0$

$\left\{\frac{i}{2}, -\frac{i}{2}\right\}$

5) $-4x^2 - 12 = -8$

$\{-i, i\}$

6) $-11a^2 - 4 = 8$

$\left\{-\frac{2i\sqrt{33}}{11}, \frac{2i\sqrt{33}}{11}\right\}$

7) $-7x^2 = 11$

$\left\{-\frac{i\sqrt{77}}{7}, \frac{i\sqrt{77}}{7}\right\}$

8) $12x^2 + 5 = 0$

$\left\{\frac{i\sqrt{15}}{6}, -\frac{i\sqrt{15}}{6}\right\}$

9) $12v^2 + 3 - 3v = -3v - 4$

$\left\{\frac{i\sqrt{21}}{6}, -\frac{i\sqrt{21}}{6}\right\}$

10) $-12x^2 + 7x - 8 = -3$

$\left\{\frac{7 - i\sqrt{191}}{24}, \frac{7 + i\sqrt{191}}{24}\right\}$

11) $-10p^2 + p - 7 = 0$

$\left\{\frac{1 - 3i\sqrt{31}}{20}, \frac{1 + 3i\sqrt{31}}{20}\right\}$

12) $-5v^2 - 9v - 12 = 0$

$\left\{\frac{-9 - i\sqrt{159}}{10}, \frac{-9 + i\sqrt{159}}{10}\right\}$

13) $-11k^2 + 4k - 5 = 0$

$\left\{\frac{2 - i\sqrt{51}}{11}, \frac{2 + i\sqrt{51}}{11}\right\}$

14) $-12n^2 + n - 9 = 0$

$\left\{\frac{1 - i\sqrt{431}}{24}, \frac{1 + i\sqrt{431}}{24}\right\}$

15) $6n^2 + 8n + 16 = 10$

$\left\{\frac{-2 + i\sqrt{5}}{3}, \frac{-2 - i\sqrt{5}}{3}\right\}$

16) $6x^2 + 5x - 1 = -6$

$\left\{\frac{-5 + i\sqrt{95}}{12}, \frac{-5 - i\sqrt{95}}{12}\right\}$

17) $9x^2 = -5 - 10x$

$\left\{\frac{-5 + 2i\sqrt{5}}{9}, \frac{-5 - 2i\sqrt{5}}{9}\right\}$

18) $5k^2 + 5 = -6k$

$\left\{\frac{-3 + 4i}{5}, \frac{-3 - 4i}{5}\right\}$

19) $-12x^2 - 9x = -9x + 1$

$\left\{-\frac{i\sqrt{3}}{6}, \frac{i\sqrt{3}}{6}\right\}$

20) $-11m^2 - 3 = -7m^2$

$\left\{-\frac{i\sqrt{3}}{2}, \frac{i\sqrt{3}}{2}\right\}$