

SOLVE BY QUADRATIC FORMULA

Date _____

Solve each equation with the quadratic formula.

1) $x^2 - 3x - 23 = 0$

- A) $\{8, -17\}$
 B) $\left\{\frac{3 + \sqrt{101}}{2}, \frac{3 - \sqrt{101}}{2}\right\}$
 C) $\left\{\frac{21}{4}, -3\right\}$
 D) $\left\{\frac{5}{2}, -\frac{5}{2}\right\}$

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

- A) $\left\{\frac{9 + \sqrt{73}}{2}, \frac{9 - \sqrt{73}}{2}\right\}$
 B) $\left\{\frac{-9 + \sqrt{89}}{2}, \frac{-9 - \sqrt{89}}{2}\right\}$
 C) $\left\{\frac{17}{6}, -3\right\}$
 D) $\left\{\frac{9 + \sqrt{89}}{2}, \frac{9 - \sqrt{89}}{2}\right\}$

5) $2n^2 - 11n - 121 = 0$

- A) $\left\{11, -\frac{11}{2}\right\}$
 B) $\{4\sqrt{2}, -4\sqrt{2}\}$
 C) $\left\{\frac{5}{2}, -4\right\}$
 D) $\{4, -4\}$

7) $9n^2 - 5n - 11 = 0$

- A) $\left\{\frac{5 + 2\sqrt{31}}{18}, \frac{5 - 2\sqrt{31}}{18}\right\}$
 B) $\left\{\frac{5}{2}, -8\right\}$
 C) $\left\{\frac{1 + \sqrt{241}}{12}, \frac{1 - \sqrt{241}}{12}\right\}$
 D) $\left\{\frac{5 + \sqrt{421}}{18}, \frac{5 - \sqrt{421}}{18}\right\}$

2) $9p^2 - 8p - 4 = 0$

- A) $\left\{\frac{4 + 2\sqrt{13}}{9}, \frac{4 - 2\sqrt{13}}{9}\right\}$
 B) $\left\{\frac{3 + 3\sqrt{3}}{2}, \frac{3 - 3\sqrt{3}}{2}\right\}$
 C) $\left\{1, -\frac{1}{9}\right\}$
 D) $\left\{\frac{\sqrt{230}}{10}, -\frac{\sqrt{230}}{10}\right\}$

4) $12k^2 - 21 = 0$

- A) $\{1, -2\}$
 B) $\left\{\frac{11}{2}, -3\right\}$
 C) $\left\{\frac{\sqrt{7}}{4}, -\frac{\sqrt{7}}{4}\right\}$
 D) $\left\{\frac{\sqrt{7}}{2}, -\frac{\sqrt{7}}{2}\right\}$

6) $2r^2 + 6r - 21 = 0$

- A) $\left\{\frac{-3 + \sqrt{51}}{2}, \frac{-3 - \sqrt{51}}{2}\right\}$
 B) $\left\{\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right\}$
 C) $\{4, -4\}$
 D) $\left\{\frac{-9 + \sqrt{1137}}{24}, \frac{-9 - \sqrt{1137}}{24}\right\}$

8) $4p^2 + 5p - 8 = 0$

- A) $\left\{3, \frac{3}{2}\right\}$
 B) $\left\{\frac{9 + 3\sqrt{5}}{2}, \frac{9 - 3\sqrt{5}}{2}\right\}$
 C) $\left\{\frac{-9 + 3\sqrt{17}}{4}, \frac{-9 - 3\sqrt{17}}{4}\right\}$
 D) $\left\{\frac{-5 + 3\sqrt{17}}{8}, \frac{-5 - 3\sqrt{17}}{8}\right\}$

$$9) 7p^2 + 9p - 1 = 0$$

- A) $\left\{\frac{11}{2}, -1\right\}$
 B) $\left\{\frac{-9 + \sqrt{109}}{14}, \frac{-9 - \sqrt{109}}{14}\right\}$
 C) $\left\{3, -\frac{13}{2}\right\}$
 D) $\left\{\frac{-9 + \sqrt{85}}{2}, \frac{-9 - \sqrt{85}}{2}\right\}$

$$10) 12a^2 - 8a - 24 = 0$$

- A) $\left\{\frac{1 + \sqrt{19}}{3}, \frac{1 - \sqrt{19}}{3}\right\}$
 B) $\left\{\frac{-1 + \sqrt{19}}{3}, \frac{-1 - \sqrt{19}}{3}\right\}$
 C) $\{11, -11\}$
 D) $\{-4 + 2\sqrt{10}, -4 - 2\sqrt{10}\}$

$$11) 2b^2 + 6b - 13 = 0$$

- A) $\{5, -16\}$
 B) $\left\{\frac{2\sqrt{15}}{3}, -\frac{2\sqrt{15}}{3}\right\}$
 C) $\left\{\frac{-6 + \sqrt{62}}{4}, \frac{-6 - \sqrt{62}}{4}\right\}$
 D) $\left\{\frac{-3 + \sqrt{35}}{2}, \frac{-3 - \sqrt{35}}{2}\right\}$

$$12) 6n^2 + 6n - 3 = 0$$

- A) $\{2 + \sqrt{39}, 2 - \sqrt{39}\}$
 B) $\left\{\frac{-1 + \sqrt{3}}{2}, \frac{-1 - \sqrt{3}}{2}\right\}$
 C) $\{4, -10\}$
 D) $\{14, -10\}$

$$13) 9x^2 - 23 = 0$$

- A) $\left\{\frac{\sqrt{35}}{5}, -\frac{\sqrt{35}}{5}\right\}$
 B) $\{\sqrt{23}, -\sqrt{23}\}$
 C) $\{-1 + 3\sqrt{2}, -1 - 3\sqrt{2}\}$
 D) $\left\{\frac{\sqrt{23}}{3}, -\frac{\sqrt{23}}{3}\right\}$

$$14) 11n^2 + 6n - 12 = 0$$

- A) $\{-3 + \sqrt{21}, -3 - \sqrt{21}\}$
 B) $\left\{\frac{-3 + \sqrt{42}}{11}, \frac{-3 - \sqrt{42}}{11}\right\}$
 C) $\left\{\frac{-7 + \sqrt{969}}{20}, \frac{-7 - \sqrt{969}}{20}\right\}$
 D) $\left\{\frac{-3 + \sqrt{141}}{11}, \frac{-3 - \sqrt{141}}{11}\right\}$

$$15) 4x^2 + 7x + 1 = 0$$

- A) $\left\{\frac{-5 + \sqrt{137}}{2}, \frac{-5 - \sqrt{137}}{2}\right\}$
 B) $\left\{\frac{5 + \sqrt{109}}{6}, \frac{5 - \sqrt{109}}{6}\right\}$
 C) $\left\{\frac{-7 + \sqrt{33}}{8}, \frac{-7 - \sqrt{33}}{8}\right\}$
 D) $\left\{4, -\frac{7}{3}\right\}$

$$16) 7m^2 + 9m + 1 = 0$$

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