

Unit 2B Solving Quadratics Test Review

Solve each equation by factoring.

1) $p^2 - 10p + 16 = 0$

$(p-8)(p-2) = 0$

$p = 8, 2$

3) $3k^2 - 7k + 2 = 0$

$(3k-1)(k-2) = 0$

$k = 1/3, 2$

$\begin{matrix} 36 \\ -4 \times -9 \\ -13 \end{matrix}$

2) $6n^2 - 13n + 6 = 0$

$(3n-2)(2n-3) = 0$

$n = 2/3, 3/2$

4) $5x^2 - 10x = 0$

$5x(x-2) = 0$

$x = 0, 2$

Solve each equation with the quadratic formula.

5) $3n^2 + 8n + 12 = 0$

$x = \frac{-8 \pm \sqrt{8^2 - 4(3)(12)}}{2(3)} = \frac{-4 \pm 2i\sqrt{5}}{3}$

$= \frac{-8 \pm \sqrt{-80}}{6} = \frac{-8 \pm 4i\sqrt{5}}{6}$

7) $n^2 - 10n - 18 = 0$

$x = \frac{10 \pm \sqrt{10^2 - 4(1)(-18)}}{2(1)}$

$= \frac{10 \pm \sqrt{172}}{2} = \frac{10 \pm 2\sqrt{43}}{2} = \boxed{5 \pm \sqrt{43}}$

6) $6k^2 - 11k - 10 = 0$

$x = \frac{11 \pm \sqrt{11^2 - 4(6)(-10)}}{2(6)}$

$= \frac{11 \pm \sqrt{361}}{12} = \frac{11 \pm 19}{12} = \boxed{\frac{5}{2}, -\frac{2}{3}}$

8) $7r^2 + 6r + 18 = 12$

$7r^2 + 6r + 6 = 0$

$x = \frac{-6 \pm \sqrt{6^2 - 4(7)(6)}}{2(7)}$

$= \frac{-6 \pm \sqrt{-132}}{14} = \frac{-6 \pm 2i\sqrt{33}}{14}$

Find the discriminant of each quadratic equation then state the number and type of solutions.

9) $-5k^2 + 10k - 5 = 0$

$D = 0$ 1 Real

10) $-10p^2 + 6p + 4 = 0$

$D = 196$ 2 Real

11) $x^2 - 2x + 7 = 7$

$x^2 - 2x = 0$

$D = 4$ 2 Real

12) $7n^2 + 9n + 9 = 4$

$7n^2 + 9n + 5 = 0$

$D = -59$ 2 Imaginary

Solve each equation by completing the square.

13) $v^2 - 11v + 18 = 0$

$v^2 - 11v + \frac{121}{4} = -18 + \frac{121}{4}$

$\sqrt{(v - \frac{11}{2})^2} = \sqrt{49/4}$

$v - 11/2 = \pm 7/2$
 $\boxed{v = 9, 2}$

14) $p^2 - 15p + 52 = 0$

$p^2 - 15p + \frac{225}{4} = -52 + \frac{225}{4}$

$\sqrt{(p - \frac{15}{2})^2} = \sqrt{17/4}$

$p = \frac{15}{2} \pm \frac{\sqrt{17}}{2}$

-1-

$\boxed{p = \frac{15 \pm \sqrt{17}}{2}}$

15) $v^2 + 4v - 80 = -2$

$v^2 + 4v + 4 = 78 + 4$

$(v+2)^2 = \sqrt{82}$

$v = -2 \pm \sqrt{82}$

16) $r^2 - 2r - 57 = -9$

$r^2 - 2r + 1 = 48 + 1$

$(r-1)^2 = \sqrt{49}$

$r = 1 \pm 7$

$r = 8, -6$

17) $3x^2 - 6x + 93 = 0$

$3x^2 - 6x = -93$

$x^2 - 2x + 1 = -31 + 1$

$(x-1)^2 = \sqrt{-30}$

$x = 1 \pm i\sqrt{30}$

18) $10k^2 - 20k - 25 = 0$

$10k^2 - 20k = 25$

$k^2 - 2k + 1 = \frac{25}{10} + 1$

$(k-1)^2 = \sqrt{7/2}$

$k = 1 \pm \sqrt{7/2}$

Put the following into vertex form. State the vertex.

19) $m^2 - 4m - 32 = -8 + 32 + 4$

$(m-2)^2 = 28 \quad v(2, -28)$

$y = (m-2)^2 - 28$

20) $2x^2 - 16x - 32 = 0$

$2(x^2 - 8x + 16) = 32 + 32$

$y = 2(x-4)^2 - 64$

$v(4, -64)$

Solve the systems algebraically.

21) $y = -2x + 2$

$y = -2x^2 + 3x + 1$

$-2x + 2 = -2x^2 + 3x + 1$

$2x^2 - 5x + 1 = 0$

$(.219, 1.56)$

$x = \frac{5 \pm \sqrt{5^2 - 4(2)(1)}}{2(2)} = \frac{5 \pm \sqrt{17}}{4} \quad (2.28, -2.56)$

22) $y = x - 2$

$y = x^2 + 3x + 4$

$x - 2 = x^2 + 3x + 4$

$0 = x^2 + 2x + 6$

$x = \frac{-2 \pm \sqrt{2^2 - 4(1)(6)}}{2}$

$= \frac{-2 \pm \sqrt{-20}}{2}$

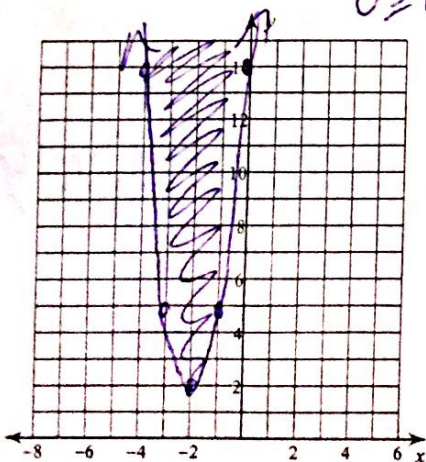
NO Solution

Sketch the graph of each function.

23) $y \geq 3x^2 + 12x + 14$

$0 \geq 14$

False



24) $y > -\frac{1}{3}x^2 - 2x$

as

