

Simplify each square root.

1. $\sqrt{8}$ $2\sqrt{2}$

2. $\sqrt{18}$ $3\sqrt{2}$

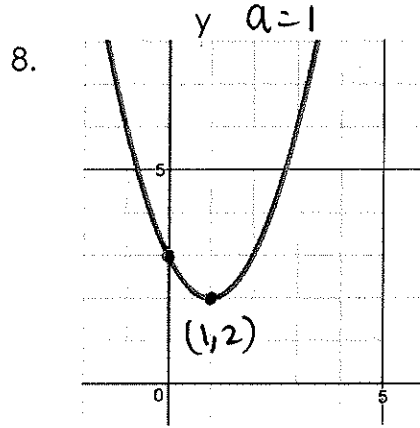
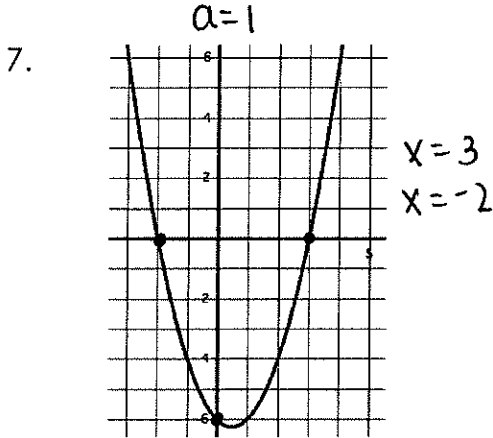
3. $\sqrt{32}$ $2 \cdot 2\sqrt{2} = 4\sqrt{2}$

4. $\sqrt{20}$ $2\sqrt{5}$

5. $\sqrt{45}$ $3\sqrt{5}$

6. $\sqrt{80}$ $2 \cdot 2\sqrt{5} = 4\sqrt{5}$

Write an equation in vertex form or factored form, then change to standard form.



factored form:
 $y = (x+2)(x-3)$

standard form:
 $y = x^2 - 1x - 6$

Are the x-intercepts Real or Imaginary?

vertex form:
 $y = (x-1)^2 + 2$

standard form:
 $y = x^2 - 2x + 3$

Real or Imaginary?

Solve using factoring, completing the square or the quadratic formula, show work.

9. $A(x) = x^2 + 4x - 21$

$a \cdot c = -21$ $b = 4$

7	-3	4
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$A(x) = (x+7)(x-3)$

$x = -7$	$x = 3$
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10. $B(x) = 5x^2 + 16x + 3$

$a=5$ $b=16$ $c=3$

$x = \frac{-16 \pm \sqrt{(16)^2 - 4(5)(3)}}{2(5)}$

$x = \frac{-16 \pm \sqrt{256 - 60}}{10}$

$x = \frac{-16 \pm \sqrt{196}}{10} = \frac{-16 \pm 14}{10}$

$x = \frac{-16+14}{10} = -\frac{1}{5}$

$x = \frac{-16-14}{10} = -3$

Solve using factoring, completing the square or the quadratic formula, show work.

11. $C(x) = x^2 - 4x + 1$

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

$x = \frac{4 \pm \sqrt{16-4}}{2} = \frac{4 \pm \sqrt{12}}{2}$

$x = \frac{4 \pm 2\sqrt{3}}{2} \Rightarrow \boxed{x = 2 \pm \sqrt{3}}$

all #s divisible by 2 (ignore $\sqrt{\quad}$)

13. $E(x) = x^2 + 3x - 40$

$a=1$ $x = \frac{-3 \pm \sqrt{3^2 - 4(1)(-40)}}{2(1)}$
 $b=3$
 $c=-40$

$x = \frac{-3 \pm \sqrt{9+160}}{2} = \frac{-3 \pm \sqrt{169}}{2}$

$x = \frac{-3 \pm 13}{2} \rightarrow x = \frac{-3+13}{2} = \textcircled{5}$

$x = \frac{-3-13}{2} = \textcircled{-8}$

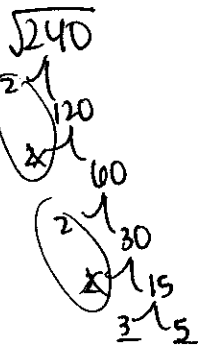
12. $D(x) = x^2 - 16x + 4$

$a=1$ $x = \frac{-(-16) \pm \sqrt{(-16)^2 - 4(1)(4)}}{2(1)}$
 $b=-16$
 $c=4$

$x = \frac{16 \pm \sqrt{256-16}}{2}$

$x = \frac{16 \pm \sqrt{240}}{2} = \frac{16 \pm 4\sqrt{15}}{2}$

$x = 8 \pm 2\sqrt{15}$



14. $G(x) = x^2 - 3x$

both terms are divisible by x (common factor)

$G(x) = (x)(x-3)$

$x=0$ $x=3$

15. Solve using quadratic formula: $f(x) = x^2 + 5x + 10$.

$a=1$ $x = \frac{-5 \pm \sqrt{5^2 - 4(1)(10)}}{2(1)} = \frac{-5 \pm \sqrt{25-40}}{2}$
 $b=5$
 $c=10$

$x = \frac{-5 \pm \sqrt{-15}}{2} \Rightarrow \boxed{x = \frac{-5 \pm i\sqrt{15}}{2}}$

What do you notice about the solution to #15 that is different from the rest of the problems?

the square root contains a negative number.