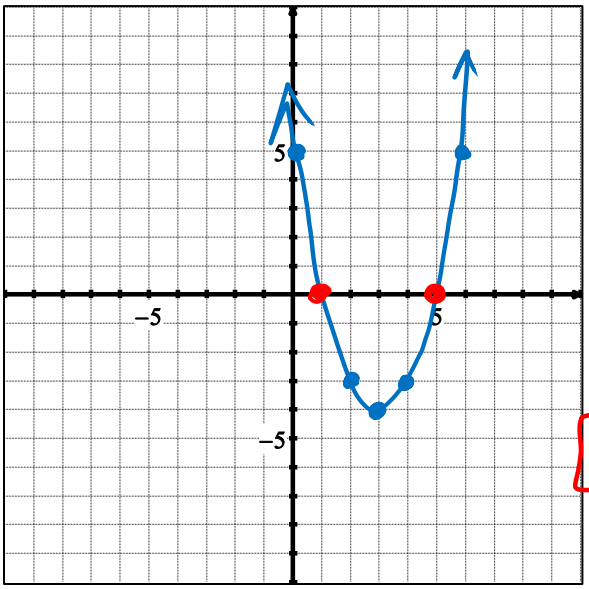
Unit 8 Day 14 HW Review Guide for solving quadratics quiz

Name: KEY

Topics: Solve by **graphing**, **square roots**, **quadratic formula**. **Completing The Square** and **Discriminant**.

Solve by Graphing $x=\frac{-b}{2a}=\frac{6}{2(1)}=3$ / $y=(3)^2-6(3)+5$ / $y=-4$

1) $x^2-6x+5=0$ (by hand)

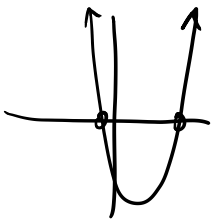


VERTEX (3, −4)

Pattern
1
3
5

X = 1 or 5

2) $f(x)=2x^2-5x-8$ solve $f(x)=0$ by calc



X = −1.108
or
X = 3.608

Solve with square roots

(notice $b = 0$)

3) $5x^2-125=0$

$5x^2=125$

$\sqrt{x^2}=\sqrt{25}$

$x=\pm 5$

4) $2x^2+32=0$

$2x^2=-32$

$\sqrt{x^2}=\sqrt{-16}$

no solution

Solve with the Quadratic Formula

5) $6x^2-5x-4=0$

$b^2-4ac=(-5)^2-4(6)(-4)=121$

$x=\frac{5\pm\sqrt{121}}{2(6)}$ → $\frac{5+11}{12}=\frac{16}{12}=\frac{4}{3}$

↓ $\frac{5-11}{12}=\frac{-6}{12}=\frac{-1}{2}$

6) $-3x^2+6x=-7$ $\quad -3x^2+6x+7=0$

$b^2-4ac=(6)^2-4(-3)(7)=120$

$x=\frac{-6\pm\sqrt{120}}{2(-3)}$ → $\frac{-6+\sqrt{120}}{-6}=-.826$

↘ $\frac{-6-\sqrt{120}}{-6}=2.826$

Use Completing the Square to put these in vertex form

7) $f(x)=x^2+6x-5$

opp.

$(x^2+6x+9)-5-9$

$f(x)=(x+3)^2-14$

8) $g(x)=x^2-12x+20$

$=(x^2-12x+36)+20-36$

$g(x)=(x-6)^2-16$

b^2-4ac

Use the Discriminant to determine if the quadratic is factorable.
If it is, factor it. If it is not, state how you know.

9) $h(x)=10x^2+7x-12$

$(7)^2-4(10)(-12)=529$

perfect square! (23^2)

Yes, it is FACTORABLE!

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

$(7)^2-4(3)(-12)=193$

NOT a perfect square

NOT FACTORABLE!

* Factors

$(5x-4)(2x+3)$

Describe the nature of the solutions of

11) $-3x^2+5x+3=0$

$b^2-4ac=(5)^2-4(-3)(3)=61$

positive

2 solutions

12) $3x^2+5x+3=0$

$b^2-4ac=(5)^2-4(3)(3)=-11$

negative

NO solution