

Algebra 2
Unit 1 Test 2 Review

Name _____

(KEY)

Solve by factoring.

1. $x^2 - 14x = -40$

$x^2 - 14x + 40 = 0$

M/A
40 | -14
-10, -4

2. $3x^2 - 11x + 10 = 0$

$(x^2 - 10x)(-4x + 40) = 0$

$x(x-10) - 4(x-10) = 0$

$(x-4)(x-10) = 0$

$x-4=0$

$x=4$

$x-10=0$

$x=10$

$x = 4$

$x = 10$

$x = \frac{5}{3}$

M/A
30 | -11
-6, -5

$(3x^2 - 6x)(-5x + 10) = 0$

$3x(x-2) - 5(x-2) = 0$

$(3x-5)(x-2) = 0$

$3x-5=0$

$3x=5$
 $x = \frac{5}{3}$

$x-2=0$

$x=2$

$x = 2$

3. $x^2 - 121 = 0$

$(x+11)(x-11) = 0$

$x+11=0$

$x=-11$

$x-11=0$

$x=11$

$x = -11$

$x = 11$

4. $2x^2 = -1x + 15$

$2x^2 + 1x - 15 = 0$

$2x-5=0$

$2x=5$
 $x = \frac{5}{2}$

$x+3=0$

$x=-3$

$x = \frac{5}{2}$

$x = -3$

M/A
30 | 1
6, -5

$(2x^2 + 6x)(-5x - 15) = 0$

$2x(x+3) - 5(x+3) = 0$

$(2x-5)(x+3) = 0$

5. $2x^2 + 11x = 30$

$2x^2 + 11x - 30 = 0$

$x-2=0$

$x=2$

$2x+15=0$

$2x=-15$
 $x = -\frac{15}{2}$

$x = 2$

$x = -\frac{15}{2}$

M/A
60 | 11
15, -4

$(2x^2 + 15x)(-4x - 30) = 0$

$x(2x+15) - 2(2x+15) = 0$

$(x-2)(2x+15) = 0$

6. $3x^2 = 300$

$3x^2 - 300 = 0$

$x+10=0$

$x=-10$

$x-10=0$

$x=10$

$x = -10$

$x = 10$

$3(x^2 - 100) = 0$

$3(x+10)(x-10) = 0$

7. $-2x^2 = 8x - 24$

$0 = 2x^2 + 8x - 24$

$0 = 2(x^2 + 4x - 12)$

$0 = (x^2 + 6x)(2x - 12)$

$x(x+6) - 2(x+6) = 0$

$2(x-2)(x+6) = 0$

$x-2=0$

$x=2$

$x+6=0$

$x=-6$

$x = 2$

$x = -6$

M/A
-12 | 4
6, -2

8. $x^2 - 15x + 64 = 14$

$x^2 - 15x + 50 = 0$

$(x-5)(x-10) = 0$

$x-5=0$

$x=5$

$x-10=0$

$x=10$

$x = 5$

$x = 10$

M/A
50 | -15
-10, -5

$(x^2 - 10x)(-5x + 50) = 0$

$x(x-10) - 5(x-10) = 0$

Find the discriminant and state the number and type of zeros/solutions. Then solve the equation by using the quadratic formula.

9. $4x^2 - 4x + 1 = 0$ $a=4$ $b=-4$ $c=1$

Disc = $(-4)^2 - 4(4)(1)$

Disc = 0

$$x = \frac{-(-4) \pm \sqrt{0}}{2(4)}$$

$$x = \frac{4 \pm 0}{2} = 2$$

Discriminant: 0

& Type: 1 Real

x = 2

x =

10. $-5x^2 + 11x - 3 = 6x - 8$
 $\quad \quad \quad -6x + 8 \quad -6x + 8$

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

Disc = $(5)^2 - 4(-5)(5)$

Disc = 125

$a=-5$ $b=5$ $c=5$

$$x = \frac{-(-5) \pm \sqrt{125}}{2(-5)}$$

$$x = \frac{-5 \pm \sqrt{125}}{-10}$$

Discriminant: 125

& Type: 2 Real

x = $\frac{-5 + \sqrt{125}}{-10}$ or $\frac{-5 + 1}{2}$

x = $\frac{-5 - \sqrt{125}}{-10}$ or $\frac{5 + 1}{2}$

11. $5x^2 - 7x + 9 = 0$ $a=5$ $b=-7$ $c=9$

Disc = $(-7)^2 - 4(5)(9)$

Disc = -131

$$x = \frac{-(-7) \pm \sqrt{-131}}{2(5)}$$

$$x = \frac{7 \pm i\sqrt{131}}{10}$$

Discriminant: -131

& Type: 2 Imaginary

x = $\frac{7 + i\sqrt{131}}{10}$

x = $\frac{7 - i\sqrt{131}}{10}$

12. $2x^2 - 7x - 13 = -10$
 $\quad \quad \quad +10 \quad +10$

$2x^2 - 7x - 3 = 0$

Disc = $(-7)^2 - 4(2)(-3)$

Disc = 73

$a=2$ $b=-7$ $c=-3$

$$x = \frac{-(-7) \pm \sqrt{73}}{2(2)}$$

$$x = \frac{7 \pm \sqrt{73}}{4}$$

Discriminant: 73

& Type: 2 Real

x = $\frac{7 + \sqrt{73}}{4}$

x = $\frac{7 - \sqrt{73}}{4}$

13. $9x^2 + 37x = -4$ $a=9$ $b=37$ $c=4$

$9x^2 + 37x + 4 = 0$

Disc = $(37)^2 - 4(9)(4)$

Disc = 1225

$$x = \frac{-(37) \pm \sqrt{1225}}{2(9)}$$

$$x = \frac{-37 \pm \sqrt{1225}}{18}$$

Discriminant: 1225

& Type: 2 Real

x = $\frac{-37 + \sqrt{1225}}{18}$ or $-\frac{1}{9}$

x = $\frac{-37 - \sqrt{1225}}{18}$ or -4

15. $2x^2 - 36 = x$ $a=2$ $b=-1$ $c=-36$

$2x^2 - x - 36 = 0$

Disc = $(-1)^2 - 4(2)(-36)$

Disc = 289

$$x = \frac{-(-1) \pm \sqrt{289}}{2(2)}$$

$$x = \frac{1 \pm \sqrt{289}}{4}$$

Discriminant: 289

& Type: 2 Real

x = $\frac{1 + \sqrt{289}}{4}$ or $\frac{9}{2}$

x = $\frac{1 - \sqrt{289}}{4}$ or -4