Algebra 1 | Unit 5 – Solving Quadratic Equations | Practice

**Day 3- Solving by Factoring**
**Practice Assignment**

**Name:** _____
**Date:** _____ **Block:** _____

**Solve the equations by factoring a GCF:**

7. $3b^2 - 81b = 0$

$3b(b-27)=0$

$3b=0$ $b-27=0$

$b=0$ $b=27$

8. $10x^2 + 40x = 0$

$10x(x+4)=0$

$10x=0$ $x+4=0$

$x=0$ $x=-4$

9. $8x^2 + 24x = 0$

$8x(x+3)=0$

$8x=0$ $x+3=0$

$x=0$ $x=-3$

10. $x^2 - 6x = 0$

$x(x-6)=0$

$x=0$ $x-6=0$

$x=6$

11. $-30x^2 = -25x$

$+30x^2 \quad +30x^2$

$0=30x^2-25x$

$5x(6x-5)=0$

$5x=0$

$x=0$

$6x-5=0$

$+5 \quad +5$

$6x=5$

$x=\frac{5}{6}$

12. $-28x^2 = 14x$

$+28x^2 \quad +28x^2$

$0=28x^2+14x$

$14x(2x+1)=0$

$14x=0$

$14 \quad 14$

$x=0$

$2x+1=0$

$-1 \quad -1$

$2x=-1$

$x=-\frac{1}{2}$

**Solve the quadratic equation to find it zeros.**

1. $(x + 5)(x - 2) = 0$

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

$-5 \quad -5$ $+2 \quad +2$

$x=-5$ $x=2$

2. $x^2 + 3x - 4 = 0$

3. $x^2 - 15x + 36 = 0$

4. $x^2 - 64 = 0$

5. $(x - 8)(x - 1) = 0$

$x-8=0$ $x-1=0$

$+8 \quad +8$ $+1 \quad +1$

$x=8$ $x=1$

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

$x^2-7x-8=0$

$(x+1)(x-8)=0$

$x+1=0$ $x-8=0$

$-1 \quad -1$ $+8 \quad +8$

$x=-1$ $x=8$

7. $x^2 - 48 = 2x$

$x^2-2x-48=0$

$(x+6)(x-8)=0$

$x+6=0$ $x-8=0$

$-6 \quad -6$ $+8 \quad +8$

$x=-6$ $x=8$

8. $x^2 + 5x = 14$

$x^2+5x-14$

$(x-2)(x+7)=0$

$x-2=0$ $x+7=0$

$x=2$ $x=-7$

10. Find the positive zero of $x^2 + 4x - 21 = 0$.

$(x-3)(x+7)=0$

$x-3=0$

$+3 \quad +3$

$x=3$

11. Which equation only has -5 has its only zero? Show work to prove the answer you selected.

A. $y = x^2 + 9x + 20$

$(x+5)(x-4)=0$

$x+5=0$ $x-4=0$

$x=-5$ $x=4$

B. $y = x^2 - 8x + 15$

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

$x=5$ $x=3$

C. $y = x^2 + 10x + 25$

$(x+5)(x+5)$

$x=-5$

D. $y = x^2 - 25$

$(x+5)(x-5)$

$x=-5, 5$

Algebra 1 Unit 5 – Solving Quadratic Equations Practice

**Solve the quadratic equations:**

1. $2x^2 - 11x - 21 = 0$

$21$: $1 \cdot 21$, $3 \cdot 7$

$(2x + 3)(x - 7)$

$2x + 3 = 0$, $-3$, $2x = -\frac{3}{2}$

$x - 7 = 0$, $+7 +7$, $x = 7$

Factored Form: _____

Zeros: $-\frac{3}{2}, 7$

2. $2x^2 - 7x - 4 = 0$

$4$: $1 \cdot 4$, $2 \cdot 2$

$(2x + 1)(x - 4)$

$2x + 1 = 0$, $-1$, $2x = -1$

$x - 4 = 0$, $+4$, $\boxed{x = 4}$

Factored Form: _____

Zeros: $-\frac{1}{2}, 4$

3. $5x^2 - 14x + 8 = 0$

$8$: $1 \cdot 8$, $4 \cdot 2$

$(5x - 4)(x - 2) = 0$

$5x - 4 = 0$, $5x = 4$, $\boxed{x = 4/5}$

$x - 2 = 0$, $+2 +2$, $\boxed{x = 2}$

Factored Form: _____

Zeros: _____

4. $5x^2 + 9x = 2$

$5x^2 + 9x - 2 = 0$

$2$: $1 \cdot 2$

$(5x - 1)(x + 2)$

$5x - 1 = 0$, $+1$, $5x = 1$

$x + 2 = 0$, $-2 -2$, $x = -2$

Factored Form: _____

Zeros: $\frac{1}{5}, -2$

5. $6x^2 + 16x - 6 = 0$

$3$: $1 \cdot 3$

$2(3x^2 + 8x - 3) = 0$

$(3x - 1)(x + 3) = 0$

$3x - 1 = 0$, $-1$, $3x = -1$

$x + 3 = 0$, $-3$, $x = -3$

Factored Form: _____

Zeros: $-\frac{1}{3}, -3$

6. $5x^2 - 19x - 26 = 4$

$-4$

$5x^2 - 19x - 30$

$30$: $1 \cdot 30$, $2 \cdot 15$, $3 \cdot 10$, $5 \cdot 6$

$(5x + 6)(x - 5)$

$5x + 6 = 0$, $-6$, $5x = -6$

$x - 5 = 0$, $+5$, $\boxed{x = 5}$

Factored Form: _____

Zeros: $-\frac{6}{5}, 5$