

Warm up

week 10

Solve the equations by factoring:

 (x)

1) $4x^2 + 32x + 63$

$$\begin{array}{cc} 1,4 & 1,63 \\ 2,2 & 3,21 \\ & 7,9 \end{array}$$

$$(2x+7)(2x+9) \quad \checkmark$$

$14x \quad 18x$

2) $8x^2 + 2x - 3$

$$\begin{array}{cc} 1,8 & = 1,3 \\ 2,4 & \end{array}$$

$$(2x-1)(4x+3) \quad \checkmark$$

$-4x \quad 6x$

Homework Questions?

$$48) \quad \cancel{16} \cdot \frac{1}{\cancel{16}} s^2 = 4 \cdot 16$$

$$\sqrt{s^2} = \sqrt{64}$$

$$s = \pm 8$$

$$\begin{array}{l} s = 8 \\ s = -8 \end{array}$$

Self Scoring Scale

4- I can *summarize* the concepts and explain it to others.

3- I can *apply* the concepts to answer questions correctly.

2- I can *apply* the concepts but with some *mistakes*.

1- I *need help* to know how to apply the concepts.

0- I *can't* apply the concepts even with help.

← Algebra 1.5 →	
② LAST UNIT/Experience Quadratic Equations	① CURRENT UNIT Polynomials & Factoring
	③ NEXT UNIT/Experience Rational Equations
⑧ Student Activities or Assignments	⑤ UNIT MAP
<ol style="list-style-type: none"> 1. 10.1 2. 10.2 3. 10.3 4. 10.4 5. 10.5 6. 10.6 7. 10.7 8. 10.8 	
⑦ UNIT SELF-TEST QUESTIONS	⑥ UNIT RELATIONSHIPS
<ol style="list-style-type: none"> 1. When adding & subtracting polynomials, how do you combine like terms? 2. How do you use distributive property, FOIL, and diagrams to multiply polynomials? 3. What is the method for factoring trinomials? 4. How is factoring & the Zero-Product Property used to solve polynomials? 	<p style="text-align: center;">Factor Solve Calculate Simplify</p>

10.7 Factoring Special Products

Goals:

- Use special product patterns to factor quadratic polynomials.
- Solve quadratic equations by factoring.

EQ: How do you solve $m^2 - 4$?

Perfect Squares

0, 1, 4, 9, 16, 25, 36, 49, 64,
81, 100, 121, 144, 169, 196, 225

$\sqrt{9x^2} - \sqrt{16}$

FACTORIZING SPECIAL PRODUCTS

Difference of Two Squares Pattern
 $a^2 - b^2 = (a + b)(a - b)$

Example
 $9x^2 - 16 = (\underline{3x} + \underline{4})(\underline{3x} - \underline{4})$

Perfect Square Trinomial Pattern
 $a^2 + 2ab + b^2 = (a + b)^2$
 $a^2 - 2ab + b^2 = (a - b)^2$

Example
 $x^2 + 8x + 16 = (\underline{x} + \underline{4})^2$
 $x^2 - 12x + 36 = (\underline{x} - \underline{6})^2$

Example 1: Factoring the Difference of Two Squares

a) $n^2 - 225 \rightarrow n^2 + 0n - 225$
 $(n + 15)(n - 15) \checkmark$

b) $\sqrt{121x^2} - 144$
 $(11x + 12)(11x - 12) \checkmark$

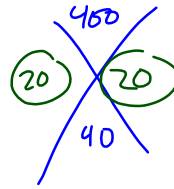
c) $\frac{243p^2}{3} - \frac{147}{3}$
 $3(81p^2 - 49)$
 $3(9p - 7)(9p + 7) \checkmark$

$-49 + 81p^2$
 $81p^2 - 49$

Example 2: Factoring Perfect Square Trinomials

a) $x^2 + 40x + 400$

$(x+20)(x+20)$ ✓
 $\begin{matrix} & 20x & \\ \curvearrowright & & \curvearrowleft \\ & 20x & \end{matrix}$



b) $9y^2 - 12y + 4$

~~$(x-6)(x-6)$~~
 ~~$(x-\frac{2}{3})(x-\frac{2}{3})$~~
 $(3y-2)(3y-2)$ ✓
 $\begin{matrix} & -6y & \\ \curvearrowright & & \curvearrowleft \\ & -6y & \end{matrix}$
 $\begin{matrix} & -6x & \\ \curvearrowright & & \curvearrowleft \\ & -6x & \end{matrix}$

$(3y-2)(3y-2)$ ✓
 $\begin{matrix} & -6y & \\ \curvearrowright & & \curvearrowleft \\ & -6y & \end{matrix}$

c) $5c^2 + 40c + 80$

$\frac{5}{5} \frac{c^2}{5} \frac{80}{5}$
 $5(c^2 + 8c + 16)$
 $5(c+4)(c+4)$ ✓
 $5(c+4)^2$

Try It Complete the following exercises.

1. Factor $\frac{16}{25}m^2 - \frac{1}{4}$.

$\sqrt{\frac{16}{25}m^2} - \sqrt{\frac{1}{4}}$

$(\frac{4}{5}m - \frac{1}{2})(\frac{4}{5}m + \frac{1}{2})$ ✓
 $\begin{matrix} & -\frac{4}{10}m & \\ \curvearrowright & & \curvearrowleft \\ & \frac{4}{10}m & \end{matrix}$

FINISH: p.615 #48-59
(Due Wednesday)

10.7 Homework

p.622 #6-11, 18-48even

$$\begin{array}{c} x^2 - y^2 \\ (x + y)(x - y) \end{array}$$