

A1 S2 w8d2 9-5 Perfect Squares

Algebra 1 Week 8 Tue Warm Up

1. Skill 13: Multiply polynomials.

$$(2x-1)(4x^2-3x+8)$$

2. Skill 14: Factor a trinomial. Factor completely.

$$2x^2 + 5x - 3$$

3. Skill 15: Factor Special Polynomials. Factor completely.

$$18k^2 - 50$$

4. Skill 16: Solve a Quadratic Equation by Factoring

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

5. Solve by "unsquaring".

$$4x^2 - 6 = 122$$



A1 S2 w8d2 9-5 Perfect Squares

Alg I Week 8 Tue

Perfect Squares



Whenever you multiply two of the same item, you “square” it. The result is called a **perfect square**. Since $4 = 2 \cdot 2 = 2^2$, 4 is a *perfect square*. Since $9x^2 = 3x \cdot 3x = (3x)^2$, $9x^2$ is a *perfect square*. Sometimes factoring polynomials can give us perfect squares.

For example, since $x^2 + 6x + 9 = (x + 3)(x + 3) = (x + 3)^2$, $x^2 + 6x + 9$ is also a *perfect square*. Since it has three terms, it is called a **perfect square trinomial**.

Factor each of the following *perfect square trinomials*:

1. $x^2 + 12x + 36 = (x + \underline{\quad})(x + \underline{\quad}) = (x + \underline{\quad})^2$

2. $y^2 - 20y + 100 = (y - \underline{\quad})(y - \underline{\quad}) =$

3. $z^2 + 8z + 16 =$

4. $a^2 - 14a + 49 =$

Fill in the blanks to make each trinomial a *perfect square*:

5. $x^2 + \underline{\quad} + 25 = (x + \underline{\quad})^2$

6. $b^2 + \underline{\quad} + 16 = (\underline{\quad})^2$

7. $c^2 - \underline{\quad} + 49 = (\underline{\quad})^2$

8. $d^2 - \underline{\quad} + 144 = (\underline{\quad})^2$



9. How is the middle number of the trinomial related to the last number of the trinomial?

Fill in the blanks to make each trinomial a *perfect square*:

10. $x^2 + 18x + \underline{\quad} = (x + \underline{\quad})^2$

11. $e^2 + 6e + \underline{\quad} = (\underline{\quad})^2$

12. $f^2 - 16f + \underline{\quad} = (\underline{\quad})^2$

13. $g^2 - 12g + \underline{\quad} = (\underline{\quad})^2$

14. How is the last number of the trinomial related to the middle number of the trinomial?

The process of finding the missing value to make a *perfect square trinomial*, like we did in #10-13, is called **completing the square**. In the next activity, you will learn how we can use this idea to help us solve quadratic equations.

A1 S2 w8d2 9-5 Perfect Squares

Sem 2 Week 8 Tue

Simplifying Radicals Practice #1

Directions: Simplify. Show all work.

1. $\sqrt{32}$

2. $\sqrt{98}$

3. $\sqrt{500}$

4. $\sqrt{48}$

5. $\sqrt{243}$

6. $5\sqrt{72}$

7. $-3\sqrt{18}$

8. $\sqrt{112}$

9. $\frac{\sqrt{12}}{4}$

10. $\frac{\sqrt{75}}{15}$

11. $\frac{4\sqrt{98}}{21}$

12. $\frac{\sqrt{180}}{6}$

Directions: Solve the quadratic equation by factoring.

13. $2x^2 - x - 15 = 0$

14. $4x - x^2 = 3$ (Careful!)

