

Lesson 11 Practice Problems

1. Select all the expressions that are perfect squares.

- A. $(x + 5)(x + 5)$
- B. $(-9 + c)(c - 9)$
- C. $(y - 10)(10 - y)$
- D. $(a + 3)(3 + a)$
- E. $(2x - 1)(2x + 1)$
- F. $(4 - 3x)(3 - 4x)$
- G. $(a + b)(b + a)$

2. Each diagram represents the square of an expression or a perfect square.

$$(n + 7)^2$$

	n	7
n	n^2	$7n$
7	$7n$	7^2

$$(5 - m)^2$$

	5	$-m$
5	5^2	$5(-m)$
$-m$	$5(-m)$	$(-m)^2$

$$(h + \frac{1}{3})^2$$

	h	$\frac{1}{3}$
h		
$\frac{1}{3}$		

- a. Complete the cells in the last table.
- b. How are the contents of the three diagrams alike? This diagram represents $(\text{term}_1 + \text{term}_2)^2$. Describe your observations about cells 1, 2, 3, and 4.

	term_1	term_2
term_1	cell 1	cell 2
term_2	cell 3	cell 4

c. Rewrite the perfect-square expressions $(n + 7)^2$, $(5 - m)^2$, and $(h + \frac{1}{3})^2$ in standard form: $ax^2 + bx + c$.

d. How are the ax^2 , bx , and c of a perfect square in standard form related to the two terms in $(\text{term}_1 + \text{term}_2)^2$?

3. Solve each equation.

a. $(x - 1)^2 = 4$

b. $(x + 5)^2 = 81$

c. $(x - 2)^2 = 0$

d. $(x + 11)^2 = 121$

e. $(x - 7)^2 = \frac{64}{49}$

4. Explain or show why the product of a sum and a difference, such as $(2x + 1)(2x - 1)$, has no linear term when written in standard form.

(From Unit 7, Lesson 8.)

5. To solve the equation $(x + 3)^2 = 4$, Han first expanded the squared expression. Here is his incomplete work:

$$\begin{aligned} (x + 3)^2 &= 4 \\ (x + 3)(x + 3) &= 4 \\ x^2 + 3x + 3x + 9 &= 4 \\ x^2 + 6x + 9 &= 4 \end{aligned}$$

- Complete Han's work and solve the equation.
- Jada saw the equation $(x + 3)^2 = 4$ and thought, "There are two numbers, 2 and -2, that equal 4 when squared. This means $x + 3$ is either 2 or it is -2. I can find the values of x from there."

Use Jada's reasoning to solve the equation.

- Can Jada use her reasoning to solve $(x + 3)(x - 3) = 5$? Explain your reasoning.

6. A jar full of marbles is displayed. The following table shows the guesses for 10 people. The actual number of marbles in the jar is 145. Calculate the absolute guessing error for all 10 guesses.

guess	190	150	125	133	167	160	148	200	170	115
absolute guessing error										

(From Unit 4, Lesson 13.)