# Unit 7 Lesson 8: Rewriting Quadratic Expressions in Factored Form (Part 3)

## 1 Math Talk: Products of Large-ish Numbers (Warm up)

### Student Task Statement

Find each product mentally.

$9 \cdot 11$

$19 \cdot 21$

$99 \cdot 101$

$109 \cdot 101$

## 2 Can Products Be Written as Differences?

### Student Task Statement

1. Clare claims that $(10 + 3)(10 - 3)$ is equivalent to $10^2 - 3^2$ and $(20 + 1)(20 - 1)$ is equivalent to $20^2 - 1^2$. Do you agree? Show your reasoning.

2. a. Use your observations from the first question and evaluate $(100 + 5)(100 - 5)$. Show your reasoning.

   b. Check your answer by computing $105 \cdot 95$.

3. Is $(x+4)(x-4)$ equivalent to $x^2-4^2$? Support your answer:

With a diagram:

| | $x$ | 4 |
|---|---|---|
| $x$ | | |
| -4 | | |

Without a diagram:

4. Is $(x+4)^2$ equivalent to $x^2+4^2$? Support your answer, either with or without a diagram.

# 3 What If There is No Linear Term?

## Student Task Statement

Each row has a pair of equivalent expressions.

Complete the table.

If you get stuck, consider drawing a diagram.
(Heads up: one of them is impossible.)

| factored form | standard form |
|---|---|
| $(x-10)(x+10)$ | |
| $(2x+1)(2x-1)$ | |
| $(4-x)(4+x)$ | |
| | $x^2-81$ |
| | $49-y^2$ |
| | $9z^2-16$ |
| | $25t^2-81$ |
| $(c+\frac{2}{5})(c-\frac{2}{5})$ | |
| | $\frac{49}{16}-d^2$ |
| $(x+5)(x+5)$ | |
| | $x^2-6$ |
| | $x^2+100$ |