## 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.

$9⋅11$

$19⋅21$

$99⋅101$

$109⋅101$

### 2 Can Products Be Written as Differences?

#### Student Task Statement

1. Clare claims that $\left(10+3\right)\left(10−3\right)$ is equivalent to $10^{2}−3^{2}$ and $\left(20+1\right)\left(20−1\right)$ is equivalent to $20^{2}−1^{2}$. Do you agree? Show your reasoning.
	1. Use your observations from the first question and evaluate $\left(100+5\right)\left(100−5\right)$. Show your reasoning.
	2. Check your answer by computing $105⋅95$.
2. Is $\left(x+4\right)\left(x−4\right)$ equivalent to $x^{2}−4^{2}$? Support your answer:
* With a diagram:

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

* Without a diagram:
1. Is $\left(x+4\right)^{2}$ 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 |
| --- | --- |
| $\left(x−10\right)\left(x+10\right)$ |   |
| $\left(2x+1\right)\left(2x−1\right)$ |   |
| $\left(4−x\right)\left(4+x\right)$ |   |
|   | $x^{2}−81$ |
|   | $49−y^{2}$ |
|   | $9z^{2}−16$ |
|   | $25t^{2}−81$ |
| $\left(c+\frac{2}{5}\right)\left(c−\frac{2}{5}\right)$ |   |
|   | $\frac{49}{16}−d^{2}$ |
| $\left(x+5\right)\left(x+5\right)$ |   |
|   | $x^{2}−6$ |
|   | $x^{2}+100$ |



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