1. Which of the following maps are functions? Why or why not? How can you tell from the graph? What is the key definition?

(a) A map from t-shirt size to students
(b) A map from student to t-shirt size
(c) \( f(x) = x^2 \)
(d) \( f(x) = \pm \sqrt{x} \)
(e) A map from states to their capitol.
(f) A map from a capitol to its state

2. On the flashcards, match cards that describe equal sets of numbers. Some sets may have more than 2 descriptions. Which ones go together?

3. Translate the following mathematical words into symbols. Make sure you know what they all mean.

(a) is
(b) at least
(c) real numbers
(d) in
(e) less than
(f) rational numbers
(g) natural numbers
(h) no more than
(i) integers
(j) greater than

4. Recall your algebra skills. Find the value(s) of \( x \) that satisfy the following equations. How do you check your answer?

(a) \( \frac{x-1}{x+1} = 6 \)
(b) \( \frac{6}{1-x^2} = 14 \)
(c) \( \sqrt{x+1} + 1 = 4 \)

5. Make sure you remember how to factor. How do you check your answer?

(a) \( x^2 + 4x - 32 \)
(b) \( 12x^2 + 5x - 2 \)
(c) \( 3x^2 - 3x - 90 \)
(d) \( 24x^2y + 34xy + 12y \)
(e) \( 6x^3 + 3x^2 + 20x + 10 \)
(f) \( 16xy - 8x + 10y - 5 \)
6. Match the left-hand and right-hand sides of the following exponent rules

- \(1\)
- \(a^{-n}\)
- \(\sqrt[n]{a}\)
- \((a^m)^n\)
- \(a^{m+n}\)
- \(\frac{a^m}{a^n}\)
- \((ab)^m\)
- \(a^{1/m}\)
- \(a^{m-n}\)
- \(a^m b^m\)
- \(a^{mn}\)
- \(a^0\)
- \(\frac{1}{a^n}\)
- \(a^m a^n\)

7. Simplify the following exponents

(a) \((x^3)^{-4}\)
(b) \(\frac{4x^3 - 3y^2}{6x^2y^{3/2}}\)
(c) \((a^3b^2c^5)(a^2b^6c^3)\)
(d) \(\left(\frac{3a^{-3}}{c^2}\right)^{-1} \left(\frac{2c^{-2}}{a^3}\right)^2\)
(e) \(\sqrt[3]{\frac{a^6b^3}{64c^{15}}}\)

8. Remember you can divide polynomials using long division (and it works just like with integers). Practice with \(\frac{2x^3 - 3x^2 - 8x - 3}{x - 3}\).

9. Do you remember completing the square? Discuss the process with your group. When do you use it? What is the goal of completing the square? Practice with the following.

(a) \(f(x) = x^2 - 3x\)
(b) \(g(x) = x^2 + 5x - 6\)
(c) \(h(x) = x^2 + xy\)
(d) \(f(x) = x^2 - 4x + 2\)
(e) \(g(x) = x^2 + 3x + 9\)
(f) \(h(x) = 2x^2 - 12x + 5\)

10. Discuss strategies for success in this class with your group.

An Ending Thought: *Believe you can and you’re halfway there.*

– Theodore Roosevelt