
MATH 10771: Exam #5 (Fall 2016)

1. Determine whether the following sequences are arithmetic sequences, geometric sequences, or neither. Determine the 380th term for only the arithmetic and geometric sequences.

(a) 4, 21, 38, 55, 72, 89, ...

(b) 7, 35, 175, 875, 4375, ...

2. Let $f(x) = -4x^2 - 5x + 7$. Find $f(-2)$.

3. Arrange the following numbers from least to greatest:

$$-\frac{5}{9}, \frac{2}{3}, \frac{4}{7}, -\frac{7}{13}, \frac{8}{17}, -\frac{6}{11}$$

4. Simplify each expression, if possible. Exact answers only.

(a) $(-27)^{2/3} =$

(b) $81^{-3/4} =$

5. How many numbers are in the following sequence?

$$7, 15, 23, 31, 39, 47, \dots, 5039, 5047, 5055$$

6. Savanna purchased a combined total of 42 Christmas bulbs and glittery snowflake ornaments to decorate the office Christmas tree. Each Christmas bulb costs \$1.05 and each glittery snowflake ornament costs \$0.65. If her purchase price before tax was \$34.50, how many Christmas bulbs and how many glittery snowflake ornaments did Savanna purchase?

7. Kayla and Cheyenne each have a set of flash cards. If you divide the cards into piles of seven, you have four flash cards left over. If you divide the cards into piles of four, you have no cards left over. If they each have between 50 and 100 flash cards, what are the possible **numbers** of flash cards that Kayla and Cheyenne can have? You must show all of your work.

8. Perform the indicated operations and simplify your answer.

(a) $4\sqrt{75} - 5\sqrt{3} + 2\sqrt{48}$

(b) $(4\sqrt{3} - \sqrt{2})(2\sqrt{3} + 3\sqrt{2})$

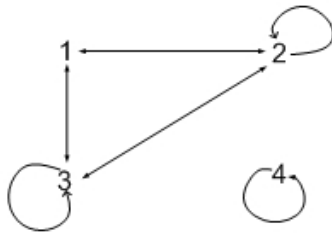
(c) $\frac{24}{\sqrt{45}}$

9. Determine if the following is an example of a function. If not, explain why not.

x	4	2	6	1	0
$f(x)$	3	5	3	5	3

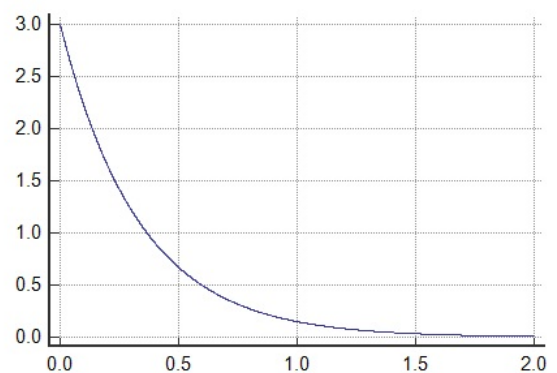
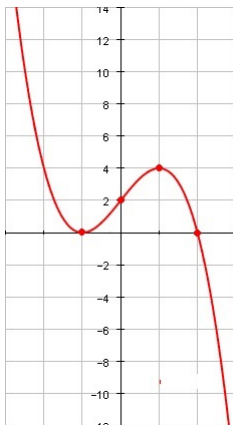
10. Determine if the following relations are reflexive, symmetric, or transitive. (Note: They may satisfy more than one property.)

(a)



(b) “is greater than”

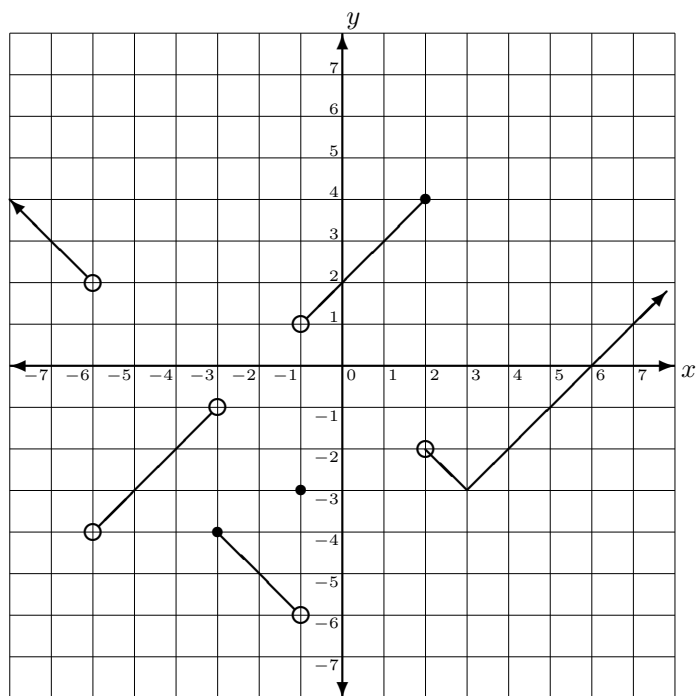
11. Determine which type of function best fits each of the following graphs: linear, quadratic, exponential, cubic, or step?



12. Solve the following inequality:

$$\frac{5}{9} - 7x \geq \frac{4}{3} - \frac{5}{6}x$$

13. Given below is the graph of f .



(a) Find $f(-1) =$

(b) Find $f(6) =$

14. Short Answer.

(a) Identify a property that rational addition has that fraction addition does not have.

(b) Give an example of a relation that is reflexive but not symmetric and not transitive.

(c) Simplify: $\sqrt[5]{-224} =$

(d) Simplify: $\sqrt[4]{1280} =$