

Kerry Ojakian's MTH 28.5 Class

Due Date: Thursday February 22

HW #1

General Instructions:

- Homework must be stapled, be relatively neat, and have your name on it. It must be on separate paper, not on this paper (though you do not need to copy the question).
- Homework exercises must be done in order (if you skip an exercise, still write down the number and leave some blank space).

The Assignment

1. Which of the following numbers are integers? $99, 21\frac{2}{7}, -57, 19.7, \frac{6}{7}, 0$
2. Put numbers in order from *least to greatest*: $2, \frac{1}{10}, \frac{1}{4}, -1, -2, -\frac{3}{2}, -\frac{3}{4}$
3. Simplify each:
 - (a) $|-7|$
 - (b) $|7|$
 - (c) $|- -7|$
4.
 - (a) Convert $\frac{13}{5}$ to a mixed number.
 - (b) Write $2\frac{3}{7}$ as an improper fraction.
5. Simplify each expression
 - (a) $\frac{8}{6}$
 - (b) $\frac{12}{42}$
6.
 - (a) Convert the decimal 3.5 to an improper fraction.
 - (b) Convert the fraction $\frac{9}{4}$ to a decimal.

7. Perform the operation and simplify

(a) $\frac{-1}{5} \cdot \frac{3}{10}$

(b) $\frac{6}{21} \div \frac{8}{7}$

8. For each of the following numbers, is it prime or not-prime? 2, 7, 9, 1, 1000

9. Find the Least Common Multiple (LCM) for the numbers in each part.

(a) 4 and 8

(b) 6 and 8

(c) 6 and 4 and 3

10. Perform the operation and simplify

(a) $\frac{-3}{8} + \frac{1}{6}$

(b) $\frac{-3}{8} - \frac{1}{6}$

11. Calculate the following

(a) $(-1)^{5571}$

(b) $(-1)^{5024}$

(c) 0^{13}

12. Calculate the following:

(a) $|-5 - 2|$

(b) $- - 4^2 - (-1)^3$

(c) $100 \cdot 3 - 2 \cdot 10^2$

(d) $4 + 8 \div 2 - (7)(-3)$

(e) $\frac{1}{2} - \frac{-3}{5} + -\frac{2}{3}$

13. Compute the following without a calculator (and little calculation!). Justify your answer.

Remember: Sums and products can be done in any order!

(a) $5601 + (-443) + (-5601) + 444$

(b) $(-55)(0)(7623)(-1)(56.976)$

14. Suppose there are 10 employees.

(a) If the boss gives every employee \$3.50, how much did the boss spend?

(b) Using the number from part (a), suppose the employees pool their money and buy as many \$5 sandwiches as possible. How many employees go without a sandwich?

15. Find the area and perimeter of a rectangle of width $\frac{3}{2}$ and length $\frac{4}{3}$.

16. Find the area of triangle with height $\frac{8}{57}$ and base $\frac{57}{3}$.

17. Consider the following algebraic expression: $1 + 2u + 4u^2 + u^3$.

(a) Evaluate the expression when $u = 0$

(b) Evaluate the expression when $u = 3$

(c) Evaluate the expression when $u = -3$

18. Consider the following expression: $\frac{-10 + x}{2(x - 1)}$

(a) Evaluate the expression when $x = 0$

(b) Evaluate the expression when $x = 10$

19. Express the following WITHOUT calculating.

(a) The product of -4 and an unknown.

(b) The quotient of 10 and x

(c) The sum of two unknowns.

20. Simplify (i.e. combine like terms):

(a) $10x + 5 - 3x - 1$

(b) $12x + 5x + 8 - 30x - 1$

21. Distribute:

(a) $2 \cdot (4x + 5)$

(b) $10(3y - 1)$

(c) $(-3x + 2) \cdot 2$

(d) $(-7u - 1)(-4)$

22. Simplify (by distributing, then combining like terms):

(a) $4 + 2(3x + 5)$

(b) $20 - 3(4x + 2)$

(c) $2x + 3(5x - 7)$

(d) $2(-1 + x) - 7(3x - 4)$

23. Consider the equation $x^2 = 12 - 2x^2$

(a) Is $x = 0$ a solution?

(b) Is $x = 2$ a solution?

(c) Is $x = -2$ a solution?