

## Algebra 3 Semester Exam Review

\_\_\_\_\_ name

1. Find  $A \cup B$  for  $A = \{1, 5, 7\}$ ,  $B = \{2, 5, 6\}$ .

2. Find  $A \cap B$ .

$$A = \{12, 13, 14\}; B = \{14, 15, 16\}$$

3. Simplify  $\frac{1}{12} + \frac{3}{16}$ .

4. Simplify:

$$\left(-\frac{5}{2}\right) \cdot \left(-\frac{6}{11}\right)$$

5. Evaluate the following expression using the Order of Operations Agreement.

$$5 - 7(6 - 2)^2 \div 4$$

6. Simplify  $\frac{1}{3} - \left[\frac{1}{8} + \frac{5}{6}\right] \div \frac{3}{5}$ .

7. Evaluate the variable expression when  $a = 5$ ,  $b = -1$ ,  $c = -3$ , and  $d = 5$ .

$$2b^2 \div \frac{ad}{2}$$

8. A Chinese restaurant charges \$9.95 for the adult buffet and \$6.25 for the children's buffet. One family's bill came to \$42.35. If there were three adults in the family, how many children were there?

9. The repair bill on your car is \$220.45. The charge for parts was \$140.45. A mechanic worked on your car for 2 hours. What was the charge per hour for labor?

10. A collection of twenty-three coins has a value of \$4.85. The collection contains dimes and quarters. Find the number of quarters in the collection.

11. Ten cups of a restaurant's house Italian dressing is made up by blending olive oil costing \$1.35 per cup with vinegar that costs \$0.20 per cup.

How many cups of oil are used if the cost of the blend is \$0.89 per cup?

12. Forty ounces of a 35% gold alloy are mixed with 52 oz of a 22% alloy.

Find the concentration of the resulting gold alloy.

13. Solve the inequality  $9x - 2 > 7x - 8$ . Write the solution in set-builder notation.

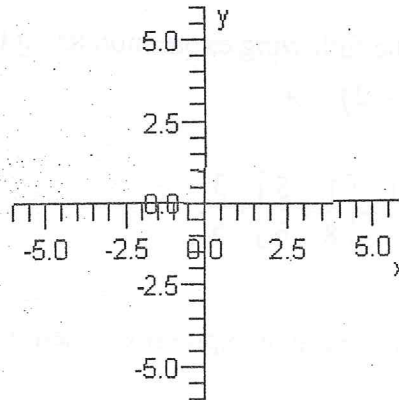
14. Solve the following compound inequality. Write the solution in interval notation.

$$2x < 4 \text{ and } x + 5 > 3$$

15. Solve  $|y - 9| = 0$ .

16. If  $f(x) = -2x - 7$ , does the ordered pair  $(4, 12)$  belong to the function?

17. Graph  $2x - y = -2$ .

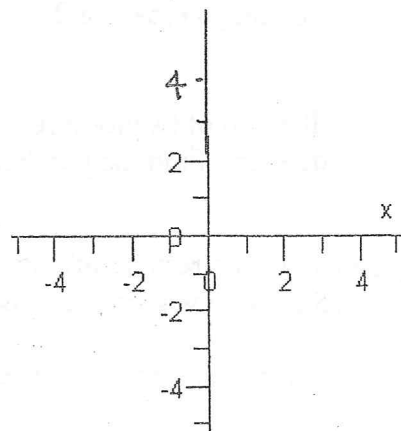


18. Find the  $x$ - and  $y$ -intercepts

$$x + 5y = 9$$

19. The slope of a line is  $-10$ . What is the slope of any line perpendicular to this line?

20. Graph the solution set of  $2x - 5y \leq 5$



21. Solve by the addition method:

$$4x + 5y + z = 11$$

$$2x - y + 2z = 25$$

$$x + 2y + 2z = 11$$

22. Graph the solution set.

$$y \leq x - 1$$

$$y \leq -x + 5$$

