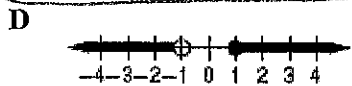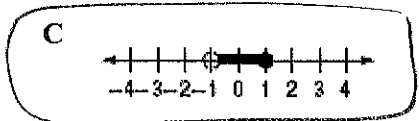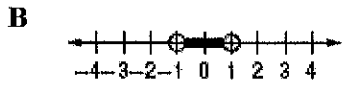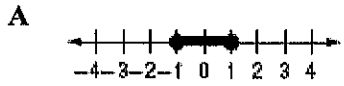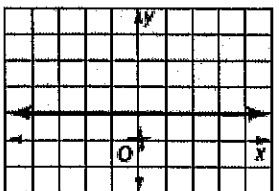# Alg. Unit 7 Study Guide

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. Which of the following is the graph of the solution set of $m > -1$ and $m \le 1$?
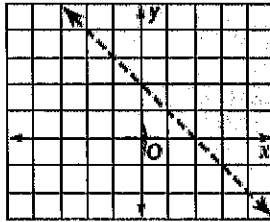
   A

   B

   C

   D

2. Which inequality has the solution set shown in the graph?

   A $y < 1$

   B $y \le 1$

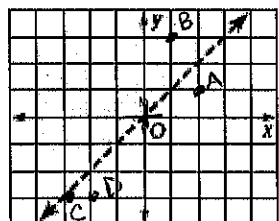   **C** $y > 1$

   D $y \ge 1$

3. Which inequality has the solution set shown in the graph?
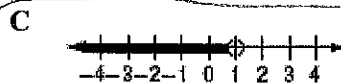
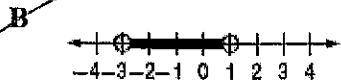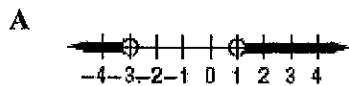   **A** $y < -x + 2$

   B $y > -x + 2$

   C $y < -x + 1$

   D $y > -x + 1$

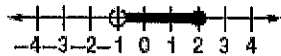4. Determine which of the ordered pairs are a part of the solution set for the inequality graphed below.

   A $(2, 1)$

   B $(1, 3)$

   C $(-3, -3)$

   D $(-2, -3)$

5 Which of the following is the graph of the solution set of $y < -3$ or $y < 1$?

A

-4 -3 -2 -1 0 1 2 3 4

B

-4 -3 -2 -1 0 1 2 3 4

C

-4 -3 -2 -1 0 1 2 3 4

D

-4 -3 -2 -1 0 1 2 3 4
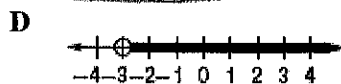
6 Which compound inequality has the solution set shown in the graph?

-4 -3 -2 -1 0 1 2 3 4

A $-1 < n < 2$

B $-1 \le n < 2$

C $n \ge -1$ or $n < 2$

D $-1 < n \le 2$

7 Pete's grade on a test was within 5 points of his class average of 94. What is his range of grades on the test?
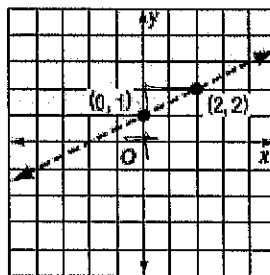
A $g \le 89$ or $g \ge 99$

B $89 \le g \le 99$

C $g \ge 89$ or $g \ge 99$ g

D $g < 99$ or $g < 89$

8 Which inequality is graphed below?

A $y < 2x + 1$

B $y > 2x + 1$

C $y < \dfrac{1}{2}x + 1$

D $y > \dfrac{1}{2}x + 1$

9 Six is at least four more than a number. Which inequality represents this sentence?

A $6 \le n + 4$

B $6 \ge n + 4$ $6 \ge 4 + n$

C $4 \le n + 6$

D $4 \ge n + 6$

10 More than eighteen students in an algebra class pass the first test. This is about three-fifths of the class. How many students are in the class?

A   less than 30 $\dfrac{3}{5}n > 18 \cdot \dfrac{5}{3}$

B   less than 25

C   more than 30 $n > 30$

D   25

11 Phillip has between two hundred and three hundred baseball cards. Which inequality represents this situation?

A $200 < p < 300$

B $200 > p > 300$

C $p \leq 300 \text{ or } p < 200$
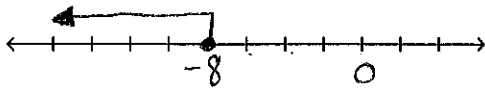
D $p < 200 \text{ and } p > 300$

Short Answer
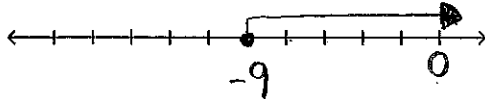
Solve the inequality and graph the solution..
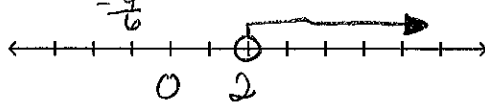
12 $9m \le -72$ $m \le -8$

13 $-2f < 18$ $f > -9$

14 $3h + 9 > 15$ $h > 2$

15 $3a + 3 - 6a > 15$ $a < 4$
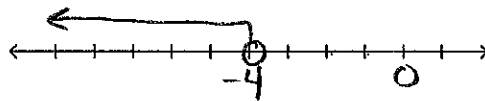
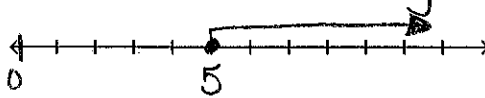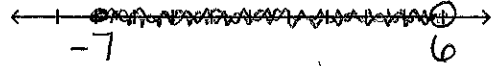16 $5(2g - 3) - 6g \ge -2(g - 6) + 3$ $g \ge 5$

Solve the compound inequality and graph the solution set.
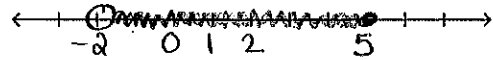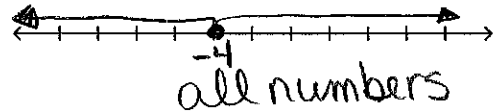
17 $u + 8 \ge 1$ and $u - 3 < 3$ $u \ge -7$ and $u < 6$

18 $2k + 5 > 1$ and $3k - 9 \le 6$ $k > -2$ and $k \le 5$

19 $0 + v \le -4$ or $-2v \le 8$ $v \le -4$ or $v \ge -4$ all numbers

Simplify the expression.

20 $9x + 8(6x + 2)$ $57x + 16$

The formula for the perimeter, P, of a rectangle is $P = 2\ell + 2w$, where ℓ is the length and w is the width.

21 Solve the formula for the perimeter of a rectangle for w.

$w = \dfrac{P - 2\ell}{2}$ or $w = \dfrac{P}{2} - \ell$

22 Leo's electric car needs to be recharged every 280 miles, so it should travel no more than 140 miles from the charger. If he drives at an average speed of 50 miles per hour, what is the length of the time, t, he can drive away from the charger and then still make it back without running out of energy?

$\frac{140}{50}$

$t \le 2.8$

$2.8 hrs$

23 Write an equation for the line that passes through $\left(\frac{1}{4}, \frac{2}{5}\right)$ and $\left(\frac{3}{4}, \frac{7}{5}\right)$. What is the slope?
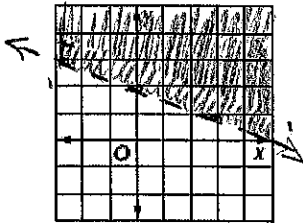
$m = 2$

$y = 2x - \frac{1}{10}$

24 Determine whether $y = 4x + 5$ and $y = \frac{1}{4}x - 2$ are perpendicular. Explain.

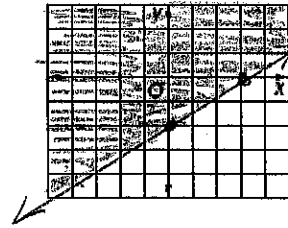no - the slopes are inverse but not opposite

25 Write an equation of the line that is parallel to the graph of $y = -4x + 2$ and passes through $(2, -4)$.
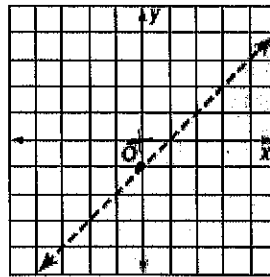
$y = -4x + 4$

26 Graph $y > -\frac{1}{3}x + 2$.

27 Use a graph to solve $2x - 3y \le 6$.

$y \ge \frac{2}{3}x - 2$

28 What inequality has the solution set shown in the graph?

$y < x - 1$

5