

Inequalities Test - Grade 9 Math

Name : _____

Date: _____

For # 1-6, write the term from the list that completes each statement.

algebraically
boundary point
open circle

closed circle
graphically
double inequality

inequality
solution

- 1) A mathematical statement comparing expressions that may not be equivalent is called an _____.
- 2) Inequalities can be represented _____ on a number line or _____ using symbols.
- 3) On a number line, a(n) _____ indicates that the boundary point is not a possible solution.
- 4) For the inequality $X > 5$, the value of 7 is a specific _____.
- 5) On a number line, the value that separates solutions from non-solutions is called the _____.
- 6) On a number line, a(n) _____ indicates that the boundary point is a possible solution.

7) An internet business is preparing a flyer to advertise a sale. Express each statement as an inequality (algebraically).

- a) Savings of up to 40 % ! _____
- b) Free shipping for purchases of \$ 500 or more ! _____
- c) Over 80 major items on sale ! _____

8) Road racers use bicycles that are designed to go as fast as possible. Cycling organizations place restrictions on bicycle design to ensure fairness and rider safety. Express each restriction as an inequality (algebraically).

- a) The minimum allowable road racing bicycle mass is 6.8 kg _____
- b) A road racing bicycle can be no more than 185 cm in length. _____

9) Sketch a number line to represent each inequality. Use a ruler.

a) $r > -4$

b) $9.5 > t$

c) $v \leq -\frac{7}{8}$

d) $0 \leq s \leq 7$

10) For each inequality in # 9, state one value that is a solution .

a) _____ b) _____ c) _____ d) _____

11) Solve each inequality.

a) $d - 7 > -10$

b) $-11 \geq \frac{b}{3}$

c) $2.7 < a - 2.7$

d) $-\frac{1}{5}c > 3.2$

12) Tim earns \$ 14.50/h working for his parents' business during the summer. His goal is to earn at least \$ 600 each week. How many hours will Tim need to work each week to achieve his goal ? **Write an inequality and solve.**

13) Danielle is treating her friends to ice cream. Each scoop of ice cream costs \$ 2.25. She wants to spend less than \$ 30. How many scoops of ice cream can she buy and stay within her limit? **Write an inequality and solve.**

14) Verify whether $X \geq 5$ is the correct solution for the inequality $5X + 4 \leq 6X - 1$.

15) Solve each inequality.

a) $\frac{X}{3} - 5 < 10$

b) $9X + 30 > 13X$

c) $3X \leq 8X + 5$

d) $5X + 8 < 4X - 12$

e) $17 - 3X \leq 7X + 3$

f) $2(3X + 4) > 5(6X + 7)$

16) The ESMS leadership team is planning a sports banquet. The cost of the dinner is \$ 450 plus \$ 24 per person. The team needs to keep the total costs for the dinner under \$ 2000. How many people can attend the banquet? **Write an inequality and solve.**

17) The student council is considering 2 different companies to print the school's yearbooks. "Great Graphics" charges \$ 250 plus \$ 12.25 per book. "Print Express" charges \$ 900 plus \$ 9.50 per book. How many orders for yearbooks would make "Print Express" the better option. **Write an inequality and solve.**