A.CED.A.1: Modeling Linear Inequalities 2b
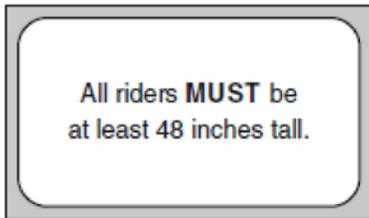
1   If Rosa's age is represented by R, which inequality represents the statement "Rosa is at most 29 years old"?

2   The sign shown below is posted in front of a roller coaster ride at the Wadsworth County Fairgrounds.

All riders **MUST** be
at least 48 inches tall.

If h represents the height of a rider in inches, what is a correct translation of the statement on this sign?

3   Roger is having a picnic for 78 guests. He plans to serve each guest at least one hot dog. If each package, p, contains eight hot dogs, which inequality could be used to determine how many packages of hot dogs Roger will need to buy?

4   Jeremy is hosting a Halloween party for 80 children. He will give each child *at least* one candy bar. If each bag of candy contains 18 candy bars, which inequality can be used to determine how many bags, c, Jeremy will need to buy?

5   Carol plans to sell twice as many magazine subscriptions as Jennifer. If Carol and Jennifer need to sell at least 90 subscriptions in all, which inequality could be used to determine how many subscriptions, x, Jennifer needs to sell?

6   Mrs. Smith wrote "Eight less than three times a number is greater than fifteen" on the board. If x represents the number, which inequality is a correct translation of this statement?

7   The ninth grade class at a local high school needs to purchase a park permit for $250.00 for their upcoming class picnic. Each ninth grader attending the picnic pays $0.75. Each guest pays $1.25. If 200 ninth graders attend the picnic, which inequality can be used to determine the number of guests, x, needed to cover the cost of the permit?

8   The length of a rectangle is 15 and its width is w. The perimeter of the rectangle is, *at most*, 50. Which inequality can be used to find the longest possible width?

9   The length of a rectangle is three feet less than twice its width. If x represents the width of the rectangle, in feet, which inequality represents the area of the rectangle that is *at most* 30 square feet?

10 Students in a ninth grade class measured their heights, h, in centimeters. The height of the shortest student was 155 cm, and the height of the tallest student was 190 cm. Which inequality represents the range of heights?

11 If five times a number is less than 55, what is the greatest possible integer value of the number?

12 Jason's part-time job pays him $155 a week. If he has already saved $375, what is the minimum number of weeks he needs to work in order to have enough money to buy a dirt bike for $900?

13 An online music club has a one-time registration fee of $13.95 and charges $0.49 to buy each song. If Emma has $50.00 to join the club and buy songs, what is the maximum number of songs she can buy?

14 Tamara has a cell phone plan that charges $0.07 per minute plus a monthly fee of $19.00. She budgets $29.50 per month for total cell phone expenses without taxes. What is the maximum number of minutes Tamara could use her phone each month in order to stay within her budget?

15 A prom ticket at Smith High School is $120. Tom is going to save money for the ticket by walking his neighbor's dog for $15 per week. If Tom already has saved $22, what is the minimum number of weeks Tom must walk the dog to earn enough to pay for the prom ticket?

16 Peter begins his kindergarten year able to spell 10 words. He is going to learn to spell 2 new words every day. Write an inequality that can be used to determine how many days, d, it takes Peter to be able to spell *at least* 75 words. Use this inequality to determine the minimum number of whole days it will take for him to be able to spell *at least* 75 words.

17 Chelsea has $45 to spend at the fair. She spends $20 on admission and $15 on snacks. She wants to play a game that costs $0.65 per game. Write an inequality to find the maximum number of times, x, Chelsea can play the game. Using this inequality, determine the maximum number of times she can play the game.

18 Tony makes a phone call at a pay phone. The charge is 25 cents for the first four minutes, and 10 cents for each additional minute. Tony has $2.10 in change in his pocket. Write an inequality that can be used to find m, the maximum number of minutes that Tony can talk on the phone. Solve this inequality algebraically to find the maximum number of whole minutes he can talk on the phone.

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Answer Section

1 ANS:
$R \le 29$

REF: 081410ia

2 ANS:
$h \ge 48$

REF: 060906ia

3 ANS:
$8p \ge 78$

REF: 011005ia

4 ANS:
$18c \ge 80$

REF: 011403ia

5 ANS:
$2x + x \ge 90$

REF: 061321ia

6 ANS:
$3x - 8 > 15$

REF: 080803ia

7 ANS:
$(0.75)(200) + 1.25x \ge 250.00$

REF: 081107ia

8 ANS:
$30 + 2w \le 50$

REF: 081212ia

9 ANS:
$x(2x - 3) \le 30$

REF: 011513ia

10 ANS:
$155 \le h \le 190$

REF: 060821ia

11 ANS:
10
$5x < 55$

$x < 11$

REF: 061211ia
12 ANS:
4
$375 + 155w \geq 900$

$155w \geq 525$

$w \geq 3.4$

REF: 081206ia
13 ANS:
73
$13.95 + 0.49s \leq 50.00$

$0.49s \leq 36.05$

$s \leq 73.57$

REF: 080904ia
14 ANS:
150
$0.07m + 19 \leq 29.50$

$0.07m \leq 10.50$

$m \leq 150$

REF: 010904ia
15 ANS:
7. $15x + 22 \geq 120$

$x \geq 6.5\overline{3}$

REF: fall0735ia
16 ANS:
$10 + 2d \geq 75$, 33. $10 + 2d \geq 75$

$d \geq 32.5$

REF: 060834ia

17 ANS:

$$0.65x + 35 \le 45$$

$$0.65x \le 10$$

$$x \le 15$$

REF: 061135ia

18 ANS:

$$0.25 + 0.10(m - 4) \le 2.10 \quad \text{22 minutes}$$

$$0.10(m - 4) \le 1.85$$

$$m - 4 \le 18.5$$

$$m \le 22.5$$

REF: 061539ia