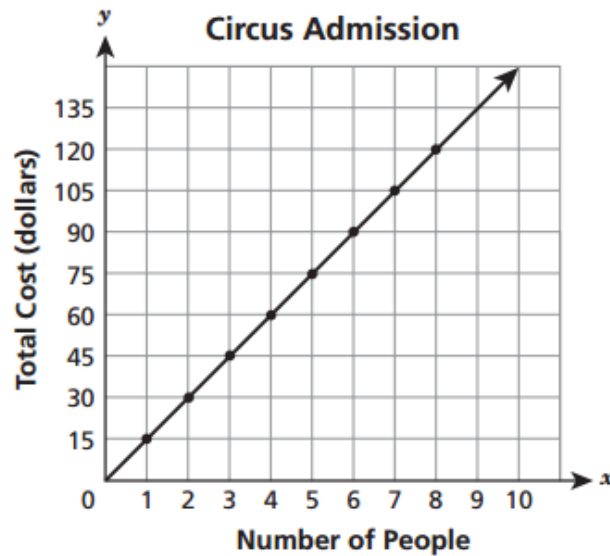# Try Now 10_ : (Equations and Inequalities)

The graph below shows the relationship between the number of people in a group and the total cost of admission tickets for a circus.

Circus Admission

What point on the graph represents the unit rate?

A   (0, 0)

B   (1, 15)

C   (15, 1)

D   (8, 120)

. What is the solution to the inequality 4z - 3 < - 1?

A. z > 8   C. z < 0.5

B. z > 0.5   D. z < 8

Model

Harper has $15.00 to spend at the grocery store. She is going to buy bags of fruit that cost $4.75 each and one box of crackers that costs $3.50.

Write and solve an inequality that models this situation and could be used to determine the **maximum** number of bags of fruit, *b*, Harper can buy.

Show your work.

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3. What is the solution to the inequality $-\frac{7}{8}c \leq 35$?

A. $c \geq -40$ C. $c \geq 40$

B. $c \leq -40$ D. $c \leq 40$

Think-Pair-Share

124070037_1

Craig went bowling with $25 to spend. He rented shoes for $5.25 and paid $4.00 for each game. What was the greatest number of games Craig could have played?

A   4

B   5

C   6

D   7

Malika and Adrian prepared containers of potato salad at a deli. Each container was supposed to have a mass of one pound. The manager selected a random sample of containers prepared by each employee to check the mass of each container. The results are shown in the table below.

MASS OF EACH CONTAINER

Malika's Containers (pounds)	Adrian's Containers (pounds)
1.10	1.30
1.08	1.21
1.05	0.79
0.95	0.90
0.98	0.88

Which inference is **best** supported by these data?

A Malika will produce more containers with a mass of exactly one pound than Adrian will.

B Adrian will produce more containers with a mass of exactly one pound than Malika will.

C Most of Malika's containers will have a mass closer to one pound than most of Adrian's containers.

D Most of Adrian's containers will have a mass closer to one pound than most of Malika's containers.

Addison wants to ride her bicycle more than 80 miles this week. She has already ridden her bicycle 18 miles. Which inequality could be used to determine the mean number of miles, m, she would need to ride her bicycle each day for six more days to achieve her goal?

A $6m + 18 < 80$

B $6m - 18 < 80$

C $6m + 18 > 80$

D $6m - 18 > 80$

Which of the following values is not a solution of $x - 4 < 15$?

$$0, \ 19, \ 18.9, \ 15\tfrac{1}{4}$$

_____ is not a solution because _____

_____

_____

Which of the following values is a solution of $12.6 \le 3x$?

4, 4.2, 3, 10

Show your work.

_____ is a solution because _____

_____

_____

1. An animal shelter has fixed weekly expenses of $750. Each animal in the shelter costs an additional $6 a week. a. During the summer months, the weekly expenses are at least $1170.
a. Write and solve an inequality that represents the number of animals at the shelter for expenses to be at least $1170 a week.

Inequality: _____

Solve:

Solution: _____

b. During the winter months, the weekly expenses are at most $900. Write and solve an inequality that represents the number of animals at the shelter for expenses to be at most $900 a week.

Inequality: _____

Solve:

Solution: _____

c. The cost for each animal has increased by $2. What will be the maximum weekly expenses during the winter months?

Solution: _____

124070035_2

Carmine paid an electrician x dollars per hour for a 5-hour job plus $70 for parts. The total charge was $320. Which equation can be used to determine how much the electrician charged per hour?

A $5x = 320 + 70$

B $5x = 320 - 70$

C $(70 + 5)x = 320$

D $(70 - 5)x = 320$

The cost of oranges in a grocery store is directly proportional to the number of oranges purchased. Jerri paid $2.52 for 6 oranges. If p represents the cost, in dollars, and n represents the number of oranges purchased, which equation best represents this relationship?

A $p = 0.42n$

B $p = 2.52n$

C $p = 6n$

D $p = 15.12n$

Ben earns $9 per hour and $6 for each delivery he makes. He wants to earn more than $155 in an 8-hour workday. What is the **least** number of deliveries he must make to reach his goal?

A 11

B 12

C 13

D 14

The basketball team has practice that lasts an hour and 45 minutes. They spend 20 minutes running laps and at least 15 minutes discussing plays. Which statement below best describes how much time they spend on other drills?

A. time on other drills < 1 hour

C. time on other drills ≥ 1 hour 10 minutes

B. time on other drills > 1 hour

D. time on other drills ≤ 1 hour 10 minutes

What is the solution to the inequality $5x - 17 > 62$?

A. $x > \dfrac{47}{5}$

C. x< 15.8

B. x > 15.8

D. x > 9

. An isosceles triangle has a base of 5 centimeters and legs x centimeters long. The perimeter is no more than 30 centimeters. Choose and solve an inequality to find the possible values of x.

A. $2x + 5 \leq 30; x \leq 12.5$

C. $5x + 2 \leq 30; x \leq 5.6$

B. $2x + 5 \geq 30; x \geq 12.5$

D. $5 + x \leq 30; x \leq 25$

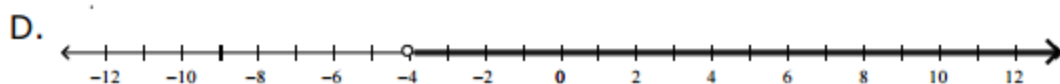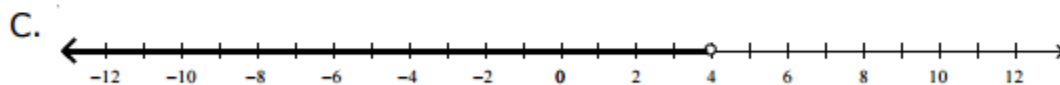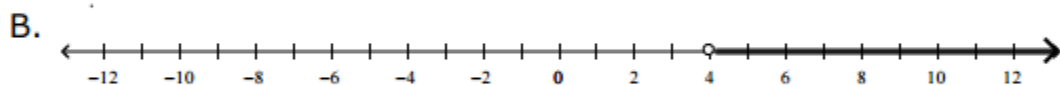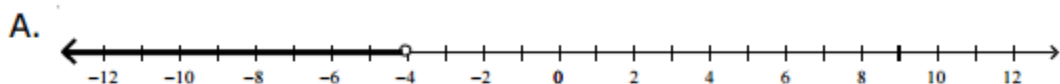. What is the solution to the inequality $-\frac{1}{4}(w - 5) \geq -4$?

A. $w \geq -21$

C. $w \leq -21$

B. $w \geq 21$

D. $w \leq 21$

. Which choice is a graph of the solution set for 12 - x < 8?

A.

B.

C.

D.

A school auditorium can hold 386 people. For a choir concert, there will be 10 staff members in attendance. One of the choir members performed the calculation below to solve for the number of guests each of the 33 choir members can invite to the concert if they all invite the same number of people.

$$33g + 10 \leq 386$$

$$33g \leq 396$$

$$\frac{33g}{33} \leq \frac{396}{33}$$

$$g \leq 12$$

What mistake did the choir member make?

A. He used the $\leq$ symbol in the inequality instead of the $<$ symbol.

B. He used the $\leq$ symbol in the inequality instead of the $\geq$ symbol.

C. He added 10 to the right side of the inequality instead of subtracting when simplifying $33g + 10 \leq 386$.

D. He subtracted 10 from the right side of the inequality instead of adding when simplifying $33g + 10 \leq 386$.

Tell whether the given value is a solution for the inequality.

$$6x - 17 > 50; x = 11$$

A. Yes, because 6(11) - 17 is greater than 50.

B. No, because 6(11) - 17 is not greater than 50.

C. Yes, because 6(11) - 17 is less than 50.

D. No, because 6(11) - 17 is not less than 50.

Addison wants to ride her bicycle more than 80 miles this week. She has already ridden her bicycle 18 miles. Which inequality could be used to determine the mean number of miles, m, she would need to ride her bicycle each day for six more days to achieve her goal?

A. $6m + 18 < 80$ C. $6m + 18 > 80$

B. $6m - 18 < 80$ D. $6m - 18 > 80$

. Kathy is packing her suitcase for a trip. She wants the total weight of the suitcase to be less than 50 pounds. The total weight so far is $37\frac{1}{2}$ pounds. She wants to add books that weigh $1\frac{3}{4}$ pounds each. Which inequality shows the number of books she can add to her suitcase?

A.

B.

C.

D.
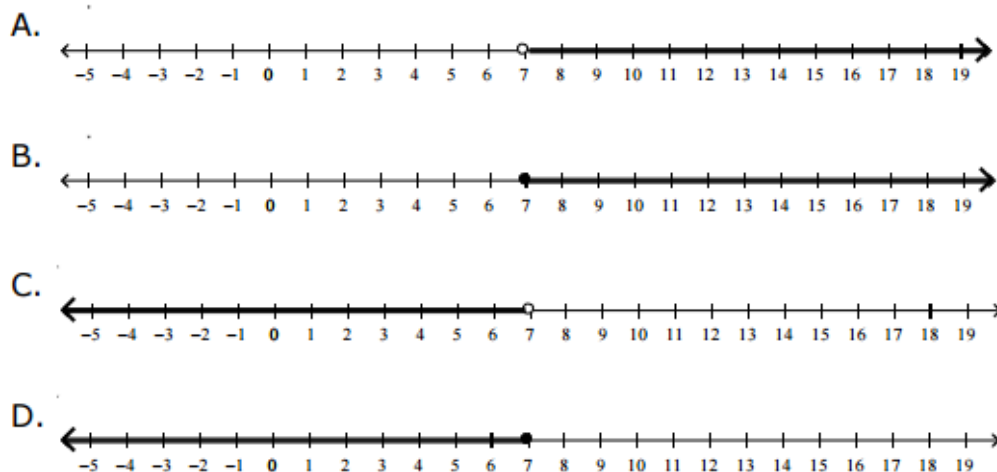
. The perimeter of this rectangle is more than 15 feet. Which of the inequality and solutions below best represent the rectangle?

5 ft
x
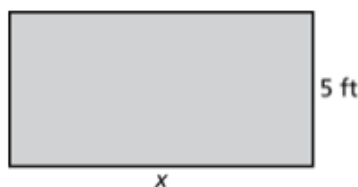
A. $x + x + 5 + 5 > 15$ ft.; $x > 12.5$ ft.   C. $2x + 10 > 15$ ft.; $x > 2.5$ ft.

B. $2x + 5 > 15$ ft.; $x > 5$ ft.   D. $2x + 10 > 15$ ft.; $x > 5$ ft.

Harper has $15.00 to spend at the grocery store. She is going to buy bags of fruit that cost $4.75 each and one box of crackers that costs $3.50.

Write and solve an inequality that models this situation and could be used to determine the **maximum** number of bags of fruit, *b*, Harper can buy.

Show your work.

Answer _____ bags of fruit

Mr. Gonzales has only $42.50 to spend at a clothing store. He wants to buy a shirt that costs $29, including tax, and some bracelets that cost $4.50 each, including tax.

Write an equation to determine x, the maximum number of bracelets Mr. Gonzales could buy.

Equation _____

Solve the equation to determine the number of bracelets Mr. Gonzales could buy.

Show your work.

Answer _____ bracelets

EXPRESSIONS AND EQUATIONS (7.EE.3)

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form, using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

1. Harold earns $10.50 per hour working at a doctor's office. On Monday he spent $1\frac{5}{12}$ hours filing paperwork, $1\frac{3}{4}$ sending e-mails and $2\frac{1}{3}$ hours making appointments. What were Harold's earnings?

2. Ingrid bought a laptop that was 30% off the regular price of $1,050. If a 7% sales tax was added to the cost of the laptop, what was the total price Ingrid paid for it?

3. In Gloria's class about 25% of the students wore sweatshirts to school one day. If there are 29 students in her class, about how many students did not wear sweatshirts to school that day?

4. Solve the equation.

$$\frac{1}{4} \times [(-6.8) + (-10.4)] + 54.3$$

5. Jasmine would like to purchase a game system that normally costs $210 but is on sale for 35% off the regular price. Jasmine earns $6.90 per hour at her job and plans to save $\frac{1}{2}$ of her total earnings to purchase the game system. Will Jasmine have enough money for the game system after working 50 hours? Use estimation to show if your answer is reasonable.

Extra Practice 10_ : (Equations and Inequalities)

Part A

What is the solution to the inequality $\frac{1}{4}(3x - 2) < -5$?

Part B

Graph the solution from Part A.

Harper has $15.00 to spend at the grocery store. She is going to buy bags of fruit that cost $4.75 each and one box of crackers that costs $3.50.

Write and solve an inequality that models this situation and could be used to determine the maximum number of bags of fruit, b, Harper can buy. **Show your work.**

Answer _____ bags of fruit

A bakery has a fixed cost of $119.75 per day plus $2.25 for each pastry. The bakery would like to keep its daily cost at or below $500 per day. Write an inequality and solve to show the maximum number of pastries, p, that can be baked each day.

Answer _____ pastries

Eduardo can spend up to $8 for lunch. He wants to buy a sandwich and a cup of soup for $5.03. Eduardo also wants to buy some fruit for dessert. Each piece of fruit costs $0.99. Write and solve an inequality that shows the number of pieces of fruit that Eduardo can buy.

Answer _____ pieces of fruit

Homework 10_ : (Equations and Inequalities)

EXPRESSIONS AND EQUATIONS (7.EE. 4)
Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

1. Kaleb went to a theme park with $25 to spend. He spent $5.25 on food and paid $4.00 for each ride. What was the greatest number of rides Kaleb could have rode?	2. Solve for x. $$78.2 + 0.5x = 287$$
3. Lauren wants to keep her cell phone bill under $60 per month. Her current cell phone plan is $30 per month plus $0.05 per text. Write an inequality to represent the number of texts t, Lauren can send each month while staying within her budget.	4. Michael paid a repairman d dollars per hour for a 4-hour job plus $60 for parts. The total charge was $320. Which equation can be used to determine how much the electrician charged per hour? a) $(60 - 4)d = 320$ b) $(60 + 4)d = 320$ c) $4d = 320 + 60$ d) $4d = 320 - 60$

5. Solve for y.

$$\frac{2}{3}(y + 57) = 178$$