

Algebra 1: 1.7a Modeling Inequalities Homework (textbook section 2.4)

Is each number a solution of the given inequality?

1) $2y + 1 > -5$ a) -4 b) -2 c) 4

2) $7x - 14 < 6x - 16$ a) 0 b) -4 c) 2

3) $n(n - 6) > -4$ a) 3 b) -2 c) 5

Model each scenario with an inequality

4) Max has more than 5 carrots

5) Brigitte is shorter than 5 feet

6) Twice a number is less than 10.

7) Six more than five times a number is at least twenty

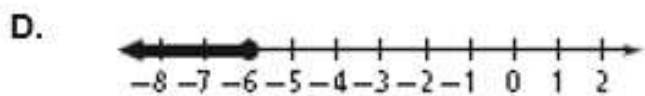
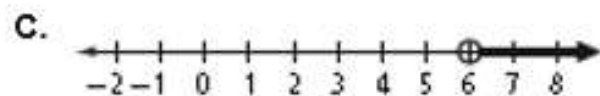
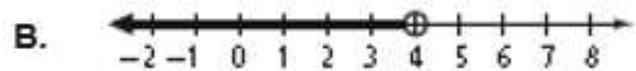
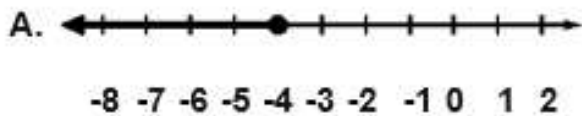
Match each inequality with its graph.

8) $6 < x$

9) $-6 \geq x$

10) $4 > x$

11) $x \leq -4$



Define a variable and write an inequality that models each situation. Do NOT solve the inequalities that you create.

12. Ernest works in the shipping department loading shipping crates with boxes. One empty crate weighs 105 lb. What is the maximum number of boxes, each weighing 35 lb, Ernest can put in the crate if the total weight is to be no more than 850 lb?

Variable: _____ Inequality: _____

13. It costs \$5 to enter a carnival and each ride costs \$2. You have \$20 to spend. What is the greatest number of rides that you can go on?

Variable: _____ Inequality: _____

14. The cost to rent a car is \$19.50 plus \$.35 per mile. If you have \$50 to rent a car, what is the greatest number of miles that you can drive?

Variable: _____ Inequality: _____

15. The student council is sponsoring a concert as a fund-raiser. Tickets are \$3 for students and \$5 for adults. The student council wants to raise at least \$1000. If 200 students attend, how many adults must attend?

Variable: _____ Inequality: _____

16. Zach is having his birthday party at Airworx. They charges \$30 for the party room rental and \$12 per person. Zach has no more than \$120 to spend on the party. Set up an equality to find out how many people he can invite.

Variable: _____ Inequality: _____

CHALLENGE: Use the cell phone plan rates from today's lesson to solve the following problem.

During the school year you use your cell phone less frequently than in the summer. You estimate that on average, you use about 2 gigabytes of data per month. But in mid-May through mid-August you use about 3.5 gigabytes of data per month. For any of these plans, you have to pay \$60 extra for any month in which you exceed the plan's limit. Which plan should you use if you have to sign up for a one year contract? Justify your conclusion.

Algebra 1: 1.7b Solving Two-Step Inequalities Homework (textbook section 2.4)

Find the solution set to each inequality.

1) $4d + 7 \leq 23$

2) $5m - 3 > -18$

3) $-4x - 2 < 8$

4) $5 - 3n \geq -4$

5) $8 \leq -12 + 5q$

6) $5 \leq 11 + 3h$

7) $-7 \leq 5 - 4a$

8) $10 > 29 - 3b$

Write an inequality that represents the description, and then solve.

9) Dave has \$15 to spend on an \$8 book and two birthday cards (c) for his friends. How much can he spend on each card if he buys the same card for each friend?

10) Toni can carry up to 18 lb in her backpack. Her lunch weighs 1 lb, her gym clothes weigh 2 lb, and her books (b) weigh 3 lb each. How many books can she carry in her backpack?

Use the back of this paper to solve the inequalities you wrote for problems 12-16 in last night's homework. Interpret your answers in WORDS.



Solve the inequalities you wrote for problems 12-16 in last night's homework. Interpret your answers in WORDS.

Algebra 1: 1.7c Solving Multi-Step Inequalities Homework (textbook section 2.4)

Find the solution set to each inequality. Verify your answer makes the inequality true.

1) $2z + 7 < z + 10$

2) $4(k - 1) > 4$

3) $h + 2(3h + 4) \geq 1$

4) $2(3 + 3g) \geq 2g + 14$

5) $r + 4 > 13 - 2r$

6) $22 > 6u - 18 - 4u$

7) $13t - 8t > -45$

8) $12 + 4m \leq 8m - 8$

9) $2(c - 4) \leq 10 - c$

10) Compare solving inequalities with solving equations. Which steps are the same, and which are different?



11) Sergio needs to buy gifts for 8 friends. He wants to give the same gift to all his friends and he plans to have the gifts wrapped for an additional charge of \$1.50 each. If Sergio spends at least \$70, he will receive free shipping on his order. Write and solve an inequality to determine how much Sergio needs to spend on each gift in order to receive free shipping.

12) Zachary is planning to send a video game to each of his two brothers. If he buys the same game for both brothers and pays \$4.75 to ship each game, how much can he spend on each game without spending more than \$100? Write and solve an inequality for this situation.

13) Steven solved the following inequality. Did he solve it correctly? If not, explain his error.

$$60 - 5t \leq 35$$

$$-5t \leq -25$$

$$t \leq 5$$

Algebra 1: 1.8a Solving Literal Equations Homework (textbook section 2.3)

Rewrite each equation to isolate the indicated variable.

1) $12ab = c$ for a

2) $y = 9x + 2$ for x

3) $df + 10 = g$ for d

4) $\frac{h-4}{j} = k$ for j

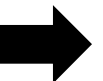
5) $\frac{a}{b} = c$ for b

6) $a(n-3) = b$ for n

Isolate the indicated variable in each equation. Give a property to justify each step.

7) $\frac{1}{3}u - 8 = t$ for u

Given



8) $z = 9 + 14xy$ for x

Given

_____	_____
_____	_____
_____	_____

Choose the best answer.

9) Which is a possible way to rewrite the equation $y = 3x + 3b$ to solve for b ?

A) $b = \frac{y-3x}{3}$

B) $b = \frac{y-3}{3x}$

C) $b = 3(y-3x)$

D) $b = x(y-3)$

10) Which of the following is equivalent to the equation $4r + 7s = q$?

A) $r = 4q - 28s$

B) $r = \frac{q-7s}{4}$

C) $s = 7q + 28r$

D) $s = \frac{q+4r}{7}$

11) Which of the following is **not** equivalent to the equation $a - 3b = 5c + 9$

A) $a = 3b + 5c + 9$

B) $b = \frac{1}{3}(a - 5c - 9)$

C) $a - 3b - 5c = 9$

D) $c = \frac{a-3b+9}{5}$

Algebra 1: 1.8b Literal Equations Applications Homework (textbook section 2.3)

1) Solve the following formulas for the specific variable.

a) $C = 2\pi r$ Solve for r

b) $V = \pi r^2 h$ Solve for h

c) $d = rt$ Solve for t

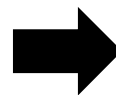
d) $y = mx + b$ Solve for x

e) $A = \frac{1}{2}bh$ Solve for b

f) $A = \frac{1}{2}(a+b)h$ Solve for h

2) At a baseball game, hot dogs cost \$2.25 and drinks cost \$1.75. The total cost, t , for h hot dogs and d drinks can be described by the equation $t = 2.25h + 1.75d$

a. Rewrite the equation to find d



b. Which properties allowed you to isolate d ?

c. If Costas spent \$18.25 and bought 5 hot dogs, how many drinks did he buy?

3) A hairdresser charges \$25 for a man's haircut, \$35 for a woman's haircut, and \$15 for a child's haircut. Her total income, t , can be described by the following equation, where m = the number of men's haircut, w = the number of women's haircuts, and c = the number of children's haircuts. $t = 25m + 35w + 15c$

a. Last week, the hairdresser's total income was \$385. Her customers included 8 women and 2 children. If she wants to find out how many customers were men, for which variable should she solve the equation?

b. Solve the equation for that variable.

c. Find the number of men who got haircuts.

4) Describe when the formula for simple interest $I = Prt$ would be more useful if it were rearranged for t

Algebra 1: 1.8c Literal Equations Review Homework (textbook section 2.3)

Solve the equation for the indicated variable.

1) $x = 3y + z$ for y

2) $12r - 6v = t$ for r

3) $21 = cd + e$ for d

4) $\frac{h}{k} - 6 = j$ for h

5) $m + 5n = p$ for n

6) $\frac{f-7}{g} = h$ for f

Solve the formula for the indicated variable.

7) Perimeter of a square:
 $P = 4s$ for s

8) Volume of a cone:
 $V = \frac{1}{3}\pi r^2 h$ for h

9) Sum of angles of a triangle:
 $A + B + C = 180$ for C

10) A student was asked to use the formula for the perimeter of a rectangle, $P = 2l + 2w$, to solve for l . The student came up with an answer, $P - 2w = 2l$. What error did the student make? Explain and solve the problem correctly.

11) Jill earns \$15 per hour babysitting plus a transportation fee of \$5 per job. Write a formula for E , Jill's earnings per babysitting job, in terms of h , the number of hours for a job. Then solve your formula for h .



12) A taxi driver charges a fixed rate of r to pick up a passenger. In addition, the taxi driver charges a rate of m for each mile driven.

- a. Write a formula to represent T , the total amount this taxi driver will charge for a trip of n miles.
- b. Solve your formula from part a for m .
- c. Find the taxi driver's mileage rate if his pickup rate is \$2 and he charges \$19.50 for a 7-mile trip.

13) Your school is about to celebrate Homecoming week! What fun it is with the pep rally, football game, and the dance! You and your team are part of the student council that helps in organizing and planning the Homecoming dance. After much planning, the school has spent \$1500 on the DJ, decorations and some snacks. Student tickets are on sale for \$15.



- a. Write an equation on how much profit your school will earn, using P for profit and t for number of tickets.
- b. Unfortunately your team forgot to record the number of tickets sold, so you only have the daily profit. Create an equivalent equation (using your answer to part a) on how many tickets t were sold based on profit P earned.

c. Use your equation from part b to find the number of tickets purchased each day based on the profit earned:

Monday \$360 Profit	Tuesday \$870 Profit	Wednesday \$105 Profit	Thursday \$285 Profit	Friday \$540 Profit