From the story to the boundary—and beyond

Start here. Read the reminder, then complete the three short responses below. About 6 minutes.

Work on paper in order. Use this example if you get stuck. Keep your corrections visible.

Worked reminder: Mai's tank

Mai's fish tank has 16 liters of water in it. She plans to add 4 liters per minute until the tank has at least 36 liters. What are the possible numbers of minutes Mai could add water?

1 Build the model

$$y = mt + b$$
$$y = 4t + 16$$

t = minutes (input)
y = liters of water (output)
m = 4 liters per minute
b = 16 starting liters

36 is the target amount.
"At least 36" means 36 or more.

2 Solve the condition

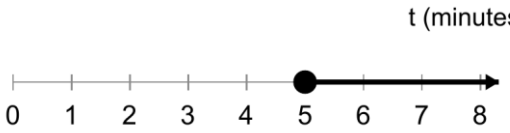
$$4t + 16 \geq 36$$
$$4t + 16 - 16 \geq 36 - 16$$
$$4t \geq 20$$
$$\frac{4t}{4} \geq \frac{20}{4}$$
$$t \geq 5$$

Dividing by positive 4 keeps ≥.

3 Read the solution

The equation 4t + 16 = 36 finds the boundary: t = 5.

The inequality includes 5 and every greater time.



Check the boundary:
4(5) + 16 = 36 liters.
Exactly 36 is acceptable.

Your turn: use what the worked reminder shows.

a. What does the 4 in 4t + 16 tell you? Include its units.

b. At 6 minutes, the tank has _____ liters. Does this meet "at least 36"? _____

c. Circle the correct sign: at most → ≤ or ≥ less than → < or ≤

TOPIC ID: **24-C1 REVIEW**	TOPIC TITLE: Two-step inequality word problems	
NAME:	BLOCK:	DATE: October 22, 2026

FORESTHILL HIGH SCHOOL

Build, solve, explain, and graph

Use the reminders on page 1. Ryan: about 8 minutes. Ashley: about 7 minutes.

Graph the possible nonnegative times. Use an open or filled boundary; show all times that work.

1 Ryan: earnings after a fee

Ryan wants to earn at least $91 trimming trees. He charges $8 per hour and pays $5 in equipment fees. What are the possible numbers of hours Ryan could trim trees?

Use t for the number of hours. Write your answer as an inequality solved for t.

Start with (hourly earnings × time) − fee.

Write the inequality. Show each operation on BOTH sides.

In words, the possible times are:



2 Ashley: a discount and a limit

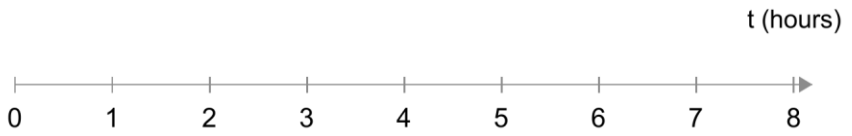
Ashley wants to rent a boat and spend less than $38. The boat costs $7 per hour, and Ashley has a discount coupon for $4 off. What are the possible numbers of hours Ashley could rent the boat?

Use t for the number of hours. Write your answer as an inequality solved for t.

The coupon reduces the rental charge.

Write the inequality. Show each operation on BOTH sides.

In words, the possible times are:



Graph reminder: < or > uses an open circle; ≤ or ≥ uses a filled circle. Read the solved inequality with t on the left.

Time cannot be negative and may be fractional. A coupon lowers the charge; it is not cash given to the renter.

Now work independently

For each problem: write the inequality, show operations on both sides, and state the meaning. About 12 minutes.

3 The meeting room

To rent a certain meeting room, a college charges a reservation fee of $17 and an additional fee of $6 per hour. The chemistry club wants to spend at most $89 on renting the room. What are the possible numbers of hours the chemistry club could rent the meeting room?

Use t for the number of hours. Write your answer as an inequality solved for t.

Write the inequality. Show each operation on BOTH sides.

In words, the possible times are:

Substitute your boundary time into the original expression. Does it reach the target?

4 Bill's earnings

Bill wants to earn at least $45 trimming trees. He charges $6 per hour and pays $3 in equipment fees. What are the possible numbers of hours Bill could trim trees?

Use t for the number of hours. Write your answer as an inequality solved for t.

Write the inequality. Show each operation on BOTH sides.

In words, the possible times are:

Substitute your boundary time into the original expression. Does it reach the target?

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Check the reasoning. Then finish on your own.

Reasoning check: 4 minutes. Final problem: 5 minutes. Review and correct your packet: 3 minutes.

5 Find and repair the error

A student solved Bill's problem this way:

$$6t - 3 \geq 45$$
$$6t \geq 48$$
$$t \leq 8$$

The student says, "There is a negative 3, so I reversed the sign."

Which step is wrong? Correct it and explain why.

Could Bill work 8.5 hours and meet his goal? Substitute 8.5 to show how you know.

6 Final problem: Ann

Ann wants to rent a boat and spend at most $77. The boat costs $8 per hour, and Ann has a discount coupon for $3 off. What are the possible numbers of hours Ann could rent the boat?

Use t for the number of hours. Write your answer as an inequality solved for t.

Write the inequality. Show each operation on BOTH sides.

In words, the possible times are:

Does exactly 10 hours meet the condition? Show a substitution.

Before handing in: check your sign, operations on both sides, final inequality, units, and graph endpoints.

Optional help outside class: From Story to Inequality Studio — Revision 1 (Topic 24). Its "Open student paper" link opens the original October 9 handout, not this review. No Studio or website is needed for this packet.

ALEKS topic: Solving a word problem using a two-step linear inequality

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