

Equation Story Match

Turn equations into real situations.

GRADE 8 • TEKS 8.8.B

8.8.B "write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants;"

NAME _____

DATE _____

BUILD THE STORY

Let x name one quantity. Turn each side into a total with a starting amount and a per-unit rate, then ask when the two totals are equal.

WORKED EXAMPLE

Write a real-world problem for $\frac{7}{8}x + 9 = \frac{5}{6}x + 13$.

1. Let x be the number of bracelets.
2. First cost: \$9 plus $\frac{7}{8}$ per bracelet.
3. Second cost: \$13 plus $\frac{5}{6}$ per bracelet.
4. Ask when the costs are equal.

Answer: A bracelet club pays \$9 plus $\frac{7}{8}$ per bracelet from Store A. Store B charges \$13 plus $\frac{5}{6}$ per bracelet. How many bracelets make the costs equal?

PRACTICE 5 problems

- 1** Write a real-world problem for $\frac{1}{2}x + 4 = \frac{1}{3}x + 8$.

ANSWER _____

- 2** Write a real-world problem for $\frac{2}{5}x + 6 = \frac{3}{10}x + 12$.

ANSWER _____

- 3** Write a real-world problem for $\frac{3}{4}x + 2 = \frac{1}{4}x + 10$.

ANSWER _____

- 4** Write a real-world problem for $\frac{5}{12}x + 7 = \frac{1}{6}x + 14$.

ANSWER _____

- 5** Write a real-world problem for $\frac{2}{3}x + 1 = \frac{1}{4}x + 11$.

ANSWER _____

APPLY IT Show your work

- 1** Streaming plans use $\frac{3}{8}x + 15 = \frac{1}{4}x + 21$. Write a problem about two plans, where x is the number of downloaded songs.

WORK SPACE

ANSWER _____

- 2** Video apps use $\frac{2}{7}x + 18 = \frac{1}{5}x + 20$. Write a problem about storage, where x is the number of videos.

WORK SPACE

ANSWER _____

CHALLENGE One step up

For $\frac{1}{2}x + 14 \leq \frac{3}{4}x + 8$, write a phone-data plan problem. Then explain what $\leq$ means in your problem.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Write a real-world problem for $\frac{1}{2}x + 4 = \frac{1}{3}x + 8$.	Bike Shop A charges \$4 plus \$1/2 per mile. Bike Shop B charges \$8 plus \$1/3 per mile. How many miles make the costs equal?
2	Write a real-world problem for $\frac{2}{5}x + 6 = \frac{3}{10}x + 12$.	Printer A takes 6 minutes plus 2/5 minute per sticker. Printer B takes 12 minutes plus 3/10 minute per sticker. How many stickers make the times equal?
3	Write a real-world problem for $\frac{3}{4}x + 2 = \frac{1}{4}x + 10$.	Game Download A takes 2 minutes to start plus 3/4 minute per file. Download B takes 10 minutes to start plus 1/4 minute per file. How many files make the download times equal?
4	Write a real-world problem for $\frac{5}{12}x + 7 = \frac{1}{6}x + 14$.	Smoothie Club A charges \$7 plus \$5/12 per smoothie. Smoothie Club B charges \$14 plus \$1/6 per smoothie. How many smoothies make the costs equal?
5	Write a real-world problem for $\frac{2}{3}x + 1 = \frac{1}{4}x + 11$.	App A uses 1 GB plus 2/3 GB per video. App B uses 11 GB plus 1/4 GB per video. How many videos make the storage amounts equal?

PART 2 • APPLY IT

- Plan A charges \$15 plus \$3/8 per downloaded song. Plan B charges \$21 plus \$1/4 per downloaded song. How many songs make the costs equal?** Each constant is a starting fee. Each coefficient is the cost per downloaded song.
- App A uses 18 GB plus 2/7 GB per video. App B uses 20 GB plus 1/5 GB per video. How many videos make the storage amounts equal?** Each side represents total storage used by one app. The question asks when the totals are equal.

CHALLENGE

Plan A costs \$14 plus \$1/2 per GB. Plan B costs \$8 plus \$3/4 per GB. For how many GB is Plan A no more expensive than Plan B? The $\leq$ means Plan A costs less than or equal to Plan B.

Accept any sensible context that defines x and correctly matches both rates and both starting amounts. Equivalent wording for equal totals or for less than or equal to is acceptable.