LESSON MAKER PRO

Rate or Fee?

Compare rates and starting costs to make a choice.

GRADE 7 · 7A.PR.B.7

7A.PR.B.7 "Compare proportional and non-proportional linear relationships represented in different ways (algebraically, graphically, numerically in tables, or by verbal descriptions) to solve real-world problems."

NAME _____ DATE _____

START AT ZERO?

A proportional relationship has a constant rate and starts at 0. A non-proportional linear relationship has a constant rate and a starting amount other than 0. To compare two plans, find their totals for the same number of uses.

WORKED EXAMPLE

One workshop charges $11 per class with no fee. Another charges $17 to join plus $6 per class. Which costs less for 4 classes?

1. First workshop: 11 × 4 = 44 dollars.
2. Second workshop: 17 + 6 × 4 = 41 dollars.
3. 41 < 44, so the second workshop costs less.

Answer: The second workshop costs $41, which is $3 less.

PRACTICE 6 problems

1 Two clubs charge y dollars for x visits. Club A uses y = 8x. Club B uses y = 10 + 3x. Which club costs less for 2 visits?

ANSWER _____

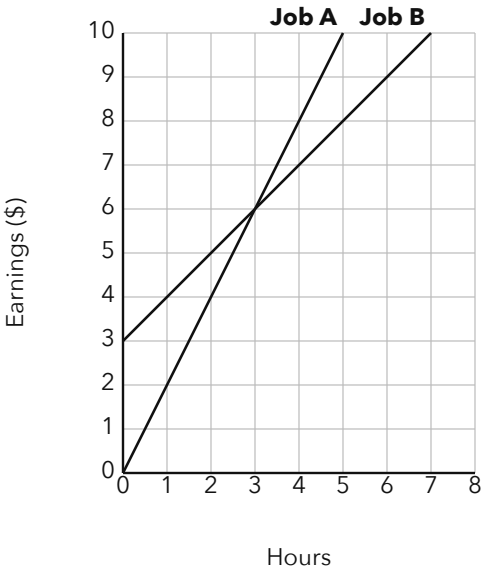
2 The table shows the cost of downloads from two stores. Which store has a proportional cost, and what is its cost per download?

DOWNLOAD COSTS

Downloads	Store A cost ($)	Store B cost ($)
0	0	8
1	5	10
2	10	12

ANSWER _____

3 The graph shows earnings from two jobs. Which job pays more for 2 hours, and by how much?



ANSWER _____

4 Bike rental A costs $5 per hour. Rental B charges $8 to start plus $1 per hour. Which rental has a proportional cost? Explain briefly.

ANSWER _____

5 A club pass costs y = 12 + 2x dollars, where x is the number of visits. How much does it cost for 5 visits?

ANSWER _____

6 The table shows the costs of two plans. If each pattern continues, which plan costs less for 5 days, and by how much?

PLAN COSTS

Days	Plan A cost ($)	Plan B cost ($)
0	0	10
1	8	12
2	16	14

ANSWER _____

APPLY IT Show your work

1 For game night, you can pay $8 per visit or pay a $12 joining fee plus $5 per visit. Which choice costs less for 5 visits, and how much do you save?

WORK SPACE

ANSWER _____

2 At an arcade, one option costs $2 per game. Another costs $9 to enter plus $1 per game. After how many games will the two options cost the same?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A skating rink charges $5 per visit with no fee. A membership costs $18 to join plus $2 per visit. For which whole numbers of visits is the membership cheaper? Explain with an inequality.

WORK SPACE AND ANSWER

ANSWER KEY

Rate or Fee?

GRADE 7 · 7A.PR.B.7

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Two clubs charge y dollars for x visits. Club A uses y = 8x. Club B uses y = 10 + 3x. Which club costs less for 2 visits?	**Neither. Both cost $16.**
2	The table shows the cost of downloads from two stores. Which store has a proportional cost, and what is its cost per download?	**Store A is proportional. It costs $5 per download.**
3	The graph shows earnings from two jobs. Which job pays more for 2 hours, and by how much?	**Job B pays $1 more. It pays $5, while Job A pays $4.**
4	Bike rental A costs $5 per hour. Rental B charges $8 to start plus $1 per hour. Which rental has a proportional cost? Explain briefly.	**Rental A. Its cost starts at $0 and increases by $5 per hour.**
5	A club pass costs y = 12 + 2x dollars, where x is the number of visits. How much does it cost for 5 visits?	**$22**
6	The table shows the costs of two plans. If each pattern continues, which plan costs less for 5 days, and by how much?	**Plan B costs $20 less. Plan A costs $40, and Plan B costs $20.**

PART 2 · APPLY IT

1. **The choice with a joining fee costs $37, saving $3.** Paying per visit costs 8 × 5 = 40 dollars. The other choice costs 12 + 5 × 5 = 37 dollars.
2. **9 games** Set the costs equal: 2x = 9 + x, so x = 9. Both options cost $18.

CHALLENGE

The membership is cheaper for 7 or more visits. Solve 18 + 2x < 5x to get x > 6.

Accept equivalent comparisons that show the same totals. For the challenge, accept any explanation that correctly identifies 7 as the first whole number of visits for which membership costs less.