LESSON MAKER PRO

Model the Moment

Use linear models to predict totals and make decisions.

HIGH SCHOOL · A1P.AF.D

A1P.AF.D "Expressions, equations, and inequalities can be used to analyze and make predictions, both within mathematics and as mathematics is applied in different contexts – in particular, contexts that arise in relation to linear, quadratic..."

NAME _____ DATE _____

START AND CHANGE

A linear expression adds a starting amount to a rate times x. Substitute a value for x to predict a total. To find when a total reaches a target, write an equation or inequality and solve.

WORKED EXAMPLE

A game pass costs $23 plus $7 per session. Write an expression for x sessions, then find the cost of 4 sessions.

1. Start with 23 and add 7 for each session: 23 + 7x.
2. Substitute 4 for x: 23 + 7(4).
3. Calculate: 23 + 28 = 51.

Answer: 23 + 7x; $51

PRACTICE 4 problems

1 An arcade charges $18 to enter plus $5 per ride. Write an expression for the cost of x rides.

ANSWER _____

2 A channel has 9 subscribers and gains 6 each day. Predict its total after 3 days.

ANSWER _____

3 A fundraiser has $14 and earns $8 per sale. How many sales will bring the total to $62?

ANSWER _____

4 A movie pass costs $11 plus $9 per visit. You can spend at most $83. Write and solve an inequality for x visits.

ANSWER _____

APPLY IT Show your work

1 A ticket site charges a $13 service fee plus $6 per ticket. You have $61. What is the most tickets you can buy?

WORK SPACE

ANSWER _____

2 A creator has 32 followers and gains 11 each day. If that pattern continues, how many days will it take to reach 131 followers?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two game rental plans cost 19 + 8x dollars and 49 + 2x dollars for x rentals. For which whole-number values of x is the first plan cheaper? Show an inequality.

WORK SPACE AND ANSWER

Model the Moment

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	An arcade charges $18 to enter plus $5 per ride. Write an expression for the cost of x rides.	**18 + 5x**
2	A channel has 9 subscribers and gains 6 each day. Predict its total after 3 days.	**27 subscribers**
3	A fundraiser has $14 and earns $8 per sale. How many sales will bring the total to $62?	**6 sales**
4	A movie pass costs $11 plus $9 per visit. You can spend at most $83. Write and solve an inequality for x visits.	**11 + 9x ≤ 83; x ≤ 8**

PART 2 · APPLY IT

1. **8 tickets** Solve 13 + 6x ≤ 61 to get x ≤ 8.
2. **9 days** Solve 32 + 11x = 131 to get x = 9.

CHALLENGE

19 + 8x < 49 + 2x, so x < 5. The first plan is cheaper for 0 through 4 rentals.

Accept equivalent expressions and inequalities. In the challenge, x must be a whole number, so x < 5 includes 0, 1, 2, 3, and 4.