LESSON MAKER PRO

Model Meaning Match

Read slope and intercept in context.

GRADE 8 · 8.FGR.6.3

8.FGR.6.3 "Explain the meaning of the predicted slope (rate of change) and the predicted intercept (constant term) of a linear model in the context of the data."

NAME _____ DATE _____

READ THE MODEL

In y=mx+b, the slope tells the predicted change in y for each unit increase in x. The intercept tells the predicted value of y when x=0. Include the units in your explanation.

WORKED EXAMPLE

A model P=7d+11 predicts points P after d days. Explain the slope and intercept.

1. The slope is 7.
2. P rises 7 points each day.
3. The intercept is 11.
4. P is predicted to be 11 when d=0.

Answer: The predicted rate is 7 points per day, and the predicted starting amount is 11 points.

PRACTICE 5 problems

1 The model y=3x+4 gives cost y in dollars for x game tokens. What do 3 and 4 mean?

ANSWER _____

2 T=-2x+18 predicts temperature T after x hours. What do the slope and intercept mean?

ANSWER _____

3 S=6x+9 predicts a player's score S after x rounds. Explain the slope and intercept.

ANSWER _____

4 y=1/2x+8 models dollars saved y after x weeks. Explain the slope and intercept.

ANSWER _____

5 A model has slope -4 and intercept 30. It predicts unread messages y after x days. Explain both values.

ANSWER _____

APPLY IT Show your work

1 A gaming lounge models total cost C in dollars with C=9h+12, where h is hours played. Explain the slope and intercept. Then find C when h=3.

WORK SPACE

ANSWER _____

2 A student has trial credits modeled by F=-3w+40, where w is weeks. Explain the slope and intercept. Then find F when w=5.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Two print shops model the cost y in dollars for x stickers. Shop A: y=2x+10. Shop B: y=5x+1. Which shop has the higher starting fee? Which has the higher cost per sticker? At how many stickers do the costs match?

_____

_____

ANSWER KEY

Model Meaning Match

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	The model y=3x+4 gives cost y in dollars for x game tokens. What do 3 and 4 mean?	**3 means $3 per token. 4 means a predicted cost of $4 for 0 tokens.**
2	T=-2x+18 predicts temperature T after x hours. What do the slope and intercept mean?	**The temperature drops 2 degrees each hour. It is predicted to be 18 degrees at 0 hours.**
3	S=6x+9 predicts a player's score S after x rounds. Explain the slope and intercept.	**The score rises 6 points per round. The predicted score is 9 points before any rounds.**
4	y=1/2x+8 models dollars saved y after x weeks. Explain the slope and intercept.	**Savings rise $1/2 per week. The predicted starting savings are $8.**
5	A model has slope -4 and intercept 30. It predicts unread messages y after x days. Explain both values.	**Unread messages decrease by 4 per day. The predicted number is 30 at 0 days.**

PART 2 · APPLY IT

1. **The cost rises $9 per hour, with a $12 starting fee. C=39 dollars when h=3.** The slope is 9 dollars per hour and the intercept is 12 dollars. Substitute h=3: C=9(3)+12=39.
2. **Credits decrease by 3 each week, starting with 40 credits. F=25 credits when w=5.** The slope is -3 credits per week and the intercept is 40 credits. Substitute w=5: F=-3(5)+40=25.

CHALLENGE

Shop A has the higher starting fee, $10. Shop B has the higher cost per sticker, $5. The costs match at 3 stickers, when both cost $16.

Accept equivalent unit language, such as “starts at” for the intercept and “increases by” or “decreases by” for the slope. Require students to connect each value to the correct variable and units.