LESSON MAKER PRO

Model the Moment

Write equations and inequalities for everyday choices.

GRADE 8 · PA.A.4.3

PA.A.4.3 "Represent real-world situations using equations and inequalities involving one variable."

NAME _____ DATE _____

CHOOSE THE RELATIONSHIP

Let x stand for the number you need to find. Use an equation when two amounts are equal, or an inequality when an amount has a limit or goal. After you solve, check whether x must be a whole number in the situation.

WORKED EXAMPLE

A climbing gym charges $11 for entry and $7 per session. Your total bill is $46. Write an equation and find the number of sessions, x.

1. Entry fee plus session costs equals the total: 11 + 7x = 46.
2. Subtract 11 from both sides: 7x = 35.
3. Divide both sides by 7: x = 5.

Answer: 11 + 7x = 46; 5 sessions

PRACTICE 6 problems

1 A streaming service charges $9 to sign up and $6 per month. Your total cost is $33. Write an equation and find the number of months, x.

ANSWER _____

2 You order patches for $3 each and pay $8 for shipping. You can spend at most $26. Write an inequality and find the greatest whole number of patches, x, you can order.

ANSWER _____

3 An arcade card starts with $60. Each game costs $14. After x games, the card has $18 left. Write an equation and find x.

ANSWER _____

4 A tournament needs at least 52 players. It has 16 players signed up, and each new team brings 9 players. Write an inequality and find the fewest new teams, x, needed.

ANSWER _____

5 A student club sells tickets for $12 each and pays $24 for supplies. It has $96 left after paying for supplies. Write an equation and find the number of tickets, x, sold.

ANSWER _____

6 You have 75 minutes to practice songs. Each song takes 18 minutes. Your practice time must be less than 75 minutes. Write an inequality and find the greatest whole number of songs, x, you can practice.

ANSWER _____

APPLY IT Show your work

1 Your esports team pays a $27 registration fee plus $4 per player. The team can spend no more than $59. Write an inequality and find the greatest number of players, x, it can register.

WORK SPACE

ANSWER _____

2 You have saved $23 and earn $18 for each dog-walking shift. A concert ticket costs $95. Write an inequality and find the fewest whole number of shifts, x, you need to work.

WORK SPACE

ANSWER _____

CHALLENGE One step up

For a school event, Photo Plan A charges $14 plus $3 per photo. Photo Plan B charges $38 plus $1 per photo. Write and solve an inequality for the number of photos, x, that makes Plan B cheaper. What is the smallest whole number of photos for which Plan B is cheaper?

WORK SPACE AND ANSWER

ANSWER KEY

Model the Moment

GRADE 8 · PA.A.4.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A streaming service charges $9 to sign up and $6 per month. Your total cost is $33. Write an equation and find the number of months, x.	**9 + 6x = 33; x = 4 months**
2	You order patches for $3 each and pay $8 for shipping. You can spend at most $26. Write an inequality and find the greatest whole number of patches, x, you can order.	**3x + 8 <= 26; x <= 6, so the greatest number is 6 patches**
3	An arcade card starts with $60. Each game costs $14. After x games, the card has $18 left. Write an equation and find x.	**60 - 14x = 18; x = 3 games**
4	A tournament needs at least 52 players. It has 16 players signed up, and each new team brings 9 players. Write an inequality and find the fewest new teams, x, needed.	**16 + 9x >= 52; x >= 4, so 4 teams are needed**
5	A student club sells tickets for $12 each and pays $24 for supplies. It has $96 left after paying for supplies. Write an equation and find the number of tickets, x, sold.	**12x - 24 = 96; x = 10 tickets**
6	You have 75 minutes to practice songs. Each song takes 18 minutes. Your practice time must be less than 75 minutes. Write an inequality and find the greatest whole number of songs, x, you can practice.	**18x < 75; x < 25/6, so the greatest number is 4 songs**

PART 2 · APPLY IT

1. **27 + 4x <= 59; x <= 8, so the greatest number is 8 players** Subtract 27, then divide by 4 to get x <= 8.
2. **23 + 18x >= 95; x >= 4, so at least 4 shifts are needed** Subtract 23, then divide by 18 to get x >= 4.

CHALLENGE

38 + x < 14 + 3x; x > 12, so the smallest whole number is 13 photos

Accept equivalent equations or inequalities with x defined as the requested count. For limits, students should give both a correct model and a whole-number answer that fits the context.