LESSON MAKER PRO

Equation Escape Room

Expand, combine, and solve.

GRADE 8 · 8.EE.C.7b

CCSS.Math.Content.8.EE.C.7b "Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms."

NAME _____ DATE _____

CLEAR THE EQUATION

Use the distributive property to multiply every term inside parentheses. Then collect like terms, use inverse operations to isolate x, and check that your solution makes both sides equal.

WORKED EXAMPLE

Solve: (7/13)(x + 26) - 19 = 9

1. Distribute: 7/13x + 14 - 19 = 9
2. Combine constants: 7/13x - 5 = 9
3. Add 5: 7/13x = 14
4. Multiply by 13/7: x = 26

Answer: x = 26

PRACTICE 6 problems

1 Solve: (1/2)(x + 12) + 5 = 21

ANSWER _____

2 Solve: (5/6)(x - 12) + 6 = 16

ANSWER _____

3 Solve: (2/5)(x - 15) - 6 = 4

ANSWER _____

4 Solve: (3/4)(x + 8) + (1/4)x = 16

ANSWER _____

5 Solve: (3/5)(x + 10) + 2 = (1/5)(x + 20) + 8

ANSWER _____

6 Solve: (1/3)(x - 12) + (5/6)(x + 6) = 15

ANSWER _____

APPLY IT Show your work

1 In a mobile game, a booster gives you 2/3 of the sum of your match coins, x, and 15 bonus coins. After you pay a 5-coin entry fee, you have 25 coins. How many match coins did you earn?

WORK SPACE

ANSWER _____

2 At a dance competition, a practice score is calculated as 3/5 of the sum of x timing points and 10 bonus points, plus 2/5 of x style points. The final score is 34. What is x?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve: (5/12)(x - 18) + (1/3)x = (1/4)(x + 12) + 11

WORK SPACE AND ANSWER

ANSWER KEY

Equation Escape Room

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Solve: (1/2)(x + 12) + 5 = 21	**x = 20**
2	Solve: (5/6)(x - 12) + 6 = 16	**x = 24**
3	Solve: (2/5)(x - 15) - 6 = 4	**x = 40**
4	Solve: (3/4)(x + 8) + (1/4)x = 16	**x = 10**
5	Solve: (3/5)(x + 10) + 2 = (1/5)(x + 20) + 8	**x = 10**
6	Solve: (1/3)(x - 12) + (5/6)(x + 6) = 15	**x = 12**

PART 2 · APPLY IT

1. **30 coins** Write (2/3)(x + 15) - 5 = 25. Distribute, then solve to get x = 30.
2. **x = 28** Write (3/5)(x + 10) + (2/5)x = 34. Distribute and combine the x terms to get x + 6 = 34, so x = 28.

CHALLENGE

x = 43

Accept any equivalent equation steps that correctly distribute, combine like terms, and isolate x. Fraction answers or decimal forms are acceptable when they are equivalent, although all solutions here are integers.