

Match the Math

Use models and algebra to test equivalent expressions.

GRADE 6 • TEKS 6.7.C

6.7.C "determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations; and"

NAME _____

DATE _____

EQUIVALENT EXPRESSIONS

Two expressions are equivalent if they have the same value for every value of x . You can use a picture or model, or use the distributive property to rewrite an expression and compare the results.

WORKED EXAMPLE

Are $7(x + 9)$ and $7x + 63$ equivalent?

1. Start with $7(x + 9)$.
2. Multiply 7 by x to get $7x$.
3. Multiply 7 by 9 to get 63.
4. $7(x + 9) = 7x + 63$, so the expressions match.

Answer: Yes, the expressions are equivalent.

PRACTICE 6 problems

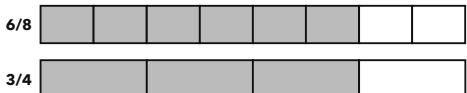
- 1** Are $4(x + 3)$ and $4x + 12$ equivalent? Write yes or no.

ANSWER _____

- 2** Are $5(x - 2)$ and $5x - 2$ equivalent? Write yes or no.

ANSWER _____

- 3** Use the fraction bars. Are $6/8$ and $3/4$ equivalent? Write yes or no.



ANSWER _____

- 4** Are $2(x + 6) + x$ and $3x + 12$ equivalent? Write yes or no.

ANSWER _____

- 5** Are $8x - 16$ and $8(x - 1)$ equivalent? Write yes or no.

ANSWER _____

- 6** A tile model has 4 equal groups. Each group has x blue tiles and 5 yellow tiles. Is $4(x + 5)$ equivalent to $4x + 20$? Write yes or no.

ANSWER _____

APPLY IT Show your work

- 1** At a robotics club, each of 3 teams earns x points in a round and gets 4 bonus points per team. Jalen writes $3(x + 4)$. Priya writes $3x + 12$. Are their expressions equivalent? Explain.

WORK SPACE

ANSWER _____

- 2** A music app charges x dollars for each of 4 downloads and one \$6 service fee for the whole order. Eli writes $4x + 6$. Nora writes $4(x + 6)$. Are their expressions equivalent? Explain.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Without choosing a value for x , decide whether $2(3x - 5) + 4$ and $6x - 6$ are equivalent. Explain your reasoning.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Are $4(x + 3)$ and $4x + 12$ equivalent? Write yes or no.	Yes
2	Are $5(x - 2)$ and $5x - 2$ equivalent? Write yes or no.	No
3	Use the fraction bars. Are $\frac{6}{8}$ and $\frac{3}{4}$ equivalent? Write yes or no.	Yes
4	Are $2(x + 6) + x$ and $3x + 12$ equivalent? Write yes or no.	Yes
5	Are $8x - 16$ and $8(x - 1)$ equivalent? Write yes or no.	No
6	A tile model has 4 equal groups. Each group has x blue tiles and 5 yellow tiles. Is $4(x + 5)$ equivalent to $4x + 20$? Write yes or no.	Yes

PART 2 • APPLY IT

- Yes. $3(x + 4) = 3x + 12$.** Distribute 3 to both x and 4. Both expressions represent the points from 3 teams.
- No. $4(x + 6) = 4x + 24$, not $4x + 6$.** The service fee is charged once, so $4x + 6$ matches the situation. Nora's expression charges the \$6 fee four times.

CHALLENGE

Yes. $2(3x - 5) + 4 = 6x - 10 + 4 = 6x - 6$, so the expressions are equivalent.

Accept equivalent expressions written in a different but correct order. For explanations, accept correct distribution or a valid model-based comparison.