

Which Ones Are Equal?

Teacher Notes

How do you know if you have multiplied and combined terms correctly? Is there a way to know that your answer choice is correct? What is an easy way to know for sure?

You can use the home screen of your graphing calculator in several ways. One that you may not have seen is using the storage capacity to find equal expressions.

Look at the problem given below.

10 Simplify the expression $3(x + 1) - 2(3x + 7)$.

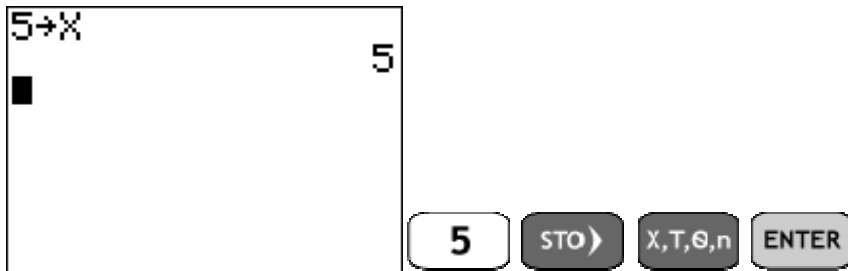
F $-3x - 11$

G $-3x - 10$

H $-3x - 8$

J $-3x + 17$

On the home screen, select any number and store it as x. (Small numbers are always easier than larger one.)



Enter the original expression and you will see what the value of the expression is when $x=5$.

Which Ones Are Equal?

| | |
|------------------|-----|
| $5+x$ | |
| $3(x+1)-2(3x+7)$ | 5 |
| | -26 |
| ■ | |

You can now check to see which of the answer choices give you the same value. Check one at a time.

| | |
|------------------|-----|
| $5+x$ | |
| $3(x+1)-2(3x+7)$ | 5 |
| | -26 |
| $-3x-11$ | -26 |
| ■ | |

Answer choice A has the same value when evaluated with the stored value for x .

Try the same method with the problem below.

25 Which expression is equivalent to $5(x^2 - 4x) - (x + 1)$?

- A** $5x^2 - 21x + 1$
- B** $5x^2 - 5x - 1$
- C** $5x^2 - 21x - 1$
- D** $5x^2 - 5x + 1$

Which Ones Are Equal?

| | |
|--|--|
| $3 \div X$ 3 | $3 \div X$ 3 $5(X^2 - 4X) - (X + 1)$ -19 |
| $3 \div X$ 3 $5(X^2 - 4X) - (X + 1)$ -19 $5X^2 - 21X + 1$ -17 <input type="checkbox"/> | 3 3 $5(X^2 - 4X) - (X + 1)$ -19 $5X^2 - 21X + 1$ -17 $5X^2 - 5X - 1$ 29 <input type="checkbox"/> |
| $5(X^2 - 4X) - (X + 1)$ -19 $5X^2 - 21X - 1$ -19 <input type="checkbox"/> | |

Which is the equivalent expression? _____ C _____

Which Ones Are Equal?

4 Simplify the algebraic expressions

$$-3(x+1)(x-4) + 2(4x^2 - 6x - 9).$$

A $5x^2 - 3x - 6$

B $5x^2 - 21x - 30$

C $11x^2 - 3x - 6$

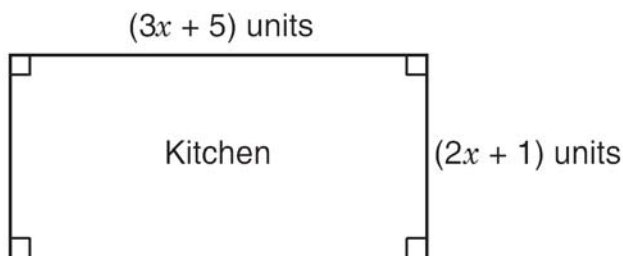
D $11x^2 - 21x - 30$

| | |
|--------------------|------|
| $4+x$ | |
| $-3(x+1)(x-4)+2(4$ | 4 |
| $x^2-6x-9)$ | |
| | 62 |
| $5x^2-3x-6$ | |
| | 62 |
| ■ | |

Which is the equivalent expression? _____A_____

Now look at the application problem below. Write your own expression for the setting of the problem and find the simplified equivalent.

16. Tammy drew a floor plan for her kitchen, as shown below.



Which expression represents the area of Tammy's kitchen floor in square units?

$A=lw$

$A=(3x+5)(2x+1)$

Which Ones Are Equal?

F $6x^2 + 30x + 5$

G $6x^2 + 13x + 5$

H $10x + 12$

J $5x + 6$

| | |
|----------------|----|
| $(3x+5)(2x+1)$ | 2 |
| $6x^2+30x+5$ | 55 |
| $6x^2+13x+5$ | 89 |
| ■ | 55 |

Which is the equivalent expression? _____ G _____