

Topics to review

- Commutative, associative, distributive, and identity property

(1)

(2)

Problem 1

Which expression is the same as the expression shown?

(1) $a \times b = ?$ • same letters/variables $a \times b \rightarrow$ multiplication
 (A) $b + a$ • Same operation/symbols $a \cdot b$
 (B) $b \times a$ • order doesn't change value $a(b)$
 (C) a
 (D) none of the above

$a \times b = 4 \times 3 = 12$
 $b \times a = 3 \times 4 = 12$

(2) $a \times b + a \times c = ?$ $a(b+c)$
 (A) $a + b \times c$
 (B) $a(b+c)$
 (C) $(a+b)(a+c)$
 (D) $a \times b + c$

Check: $a=4, b=3$
 $a+b = b+a$
 $a \times b = a, b=1$
 $a \times b = a, b=0, a=0$

(3) $a + (b+c) = ?$ $(a+b)+c$
 (A) ~~$a + b \times c$~~
 (B) ~~$a(b+c)$~~
 (C) $(a+b)(a+c)$
 (D) $(a+b)+c$

• Addition
 $= (b+c)+a = (a+c)+b = a+b+c = b+c+a$

(4) $a(b+c) = ?$ $a \cdot b + a \cdot c$
 (A) $a \times b + a \times c$
 (B) $a(b+c)$
 (C) $(a+b)(a+c)$
 (D) $(a+b)+c$

$$(2) \quad a \times b + a \times c$$

$$a \cdot b + a \cdot c$$

$$4 \cdot 3 + 4 \cdot 5$$

$$12 + 20 = 32$$

$$(a \times b) + (a \times c)$$

$$a(b+c)$$

• Distribute
- Multiplication

$$a \cdot b + a \cdot c = a \cdot c + a \cdot b =$$

$$c \cdot a + b \cdot a = b \cdot a + c \cdot a = a \cdot b + a \cdot c$$

$$a \cdot c + b \cdot a = \cancel{2a + b + c} =$$

$$3 \cdot 5 + 4 \cdot 3$$

$$2 \cdot 3 + 4 + 5$$

$$15 + 12$$

$$6 + 4 + 5 = 15$$

32

$$\cancel{a} \cdot b + \cancel{a} \cdot c$$

• Find what's in common

$$a \cdot \square$$

$$a(b+c)$$

• Factor out the common term
a

$$a(b-c) = a \cdot b - a \cdot c \neq a \cdot c - a \cdot b$$

$$a(b+c)$$

$$a = 4, b = 3, c = 5$$

PEMDAS

$$a(b+c)$$

$$4(3+5)$$

$$4(8)$$

32

Problem 2
 What number goes in the box to make the equation true? $X = \square, = X$

(A) 4
 (B) 16
 (C) 8
 (D) 13

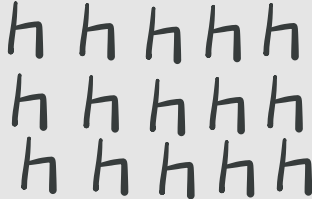
$35 - \square = 9 \times 3$ $35 - X = 27$
 $35 - X = 9 \times 3$ $-27 \quad -27$
 $35 - X = 27$ $35 - X - 27 = 0$
 $35 - 27 = 8 = X$ $+X \quad +X$
 $8 = X$

Topics to review:

- [Multiplying fractions with whole numbers \(only need to watch until 4:15\)](#)

Problem 3
 Two-thirds of the chairs were donated. How many chairs were donated?

(A) 10 chairs
 (B) 5 chairs
 (C) 12 chairs
 (D) 9 chairs



 ← Please pretend these are chairs

Topics to review:

- [Finding patterns in numbers](#)

Problem 4
 Look at the number pattern:
 3, 7, 15, 31, 63,...

What is the rule for the pattern?

(A) Multiply by 3 and then subtract 2 to get the next number in the pattern.
 (B) Add 4 to get the next number in the pattern.
 (C) Multiply by 2 and then add 1 to get the next number in the pattern.
 (D) Add 5 and then subtract 1 to get the next number in the pattern.

Problem 5

The formula $2x + 7y$ shows the cost of x packs of index cards and y packs of printer paper at Ollie's Office Supply. Alexandra needs to buy 6 packs of index cards and 4 packs of printer paper for her class. What is the total cost?

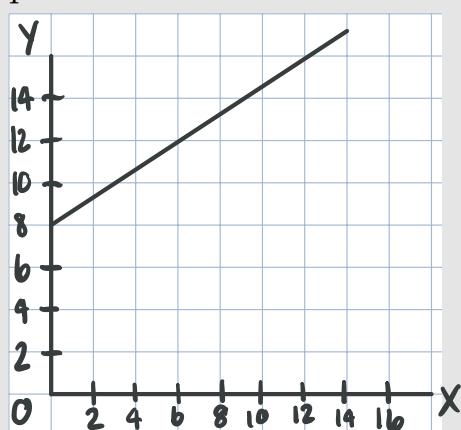
- (A) \$43
- (B) \$19
- (C) \$50
- (D) \$40

Topics to review:

- [Slope-intercept equation from two points](#)
- [Worked example: slope from two points](#)
- [How to determine if a point lies on a line or not using the point and the equation](#)

Problem 6

The graph of a straight line is shown in the coordinate plane. Use the graph to answer the question. The graph of the line continues. Which point is also on the line?



- (A) $(24, 24)$
- (B) $(8, 12)$
- (C) $(18, 16)$
- (D) $(18, 22)$