

Lesson 111 **ALGEBRA****Properties of operations – commutative, associative, distributive**

ANSWER KEY

a) $4 \times 7 = 7 \times 4 (= 28).$

b) $(2 + 3) + 4 = 2 + (3 + 4) (= 9).$

c) $3 \times (5 + 2) = (3 \times 5) + (3 \times 2) (= 21).$

Q1: associative property

Q2: associative property

a) Always — Multiplication is commutative.

b) Never — $8 - 5 = 3$, but $5 - 8 = -3$. Subtraction is not commutative.c) Never — Zero is the additive identity: $a + 0 = a$.d) Never — One is the multiplicative identity: $a \times 1 = a$.

e) Always — Addition is associative — grouping doesn't matter.

f) Never — Subtraction is not associative. $(10 - 4) - 2 = 4$, but $10 - (4 - 2) = 8$.

EXTENSION SHEET · STRETCH ANSWERS

S1: distributive property

S2: commutative property

S3: associative property