

Select which of the following show methods used correctly to multiply

$$1\frac{3}{8} \cdot 3\frac{3}{4}$$

(A) $= (1 \cdot 3) + \left(\frac{3}{8} \cdot \frac{3}{4}\right)$

(B) $= 1\left(3 + \frac{3}{4}\right) + \frac{3}{8}\left(3 + \frac{3}{4}\right)$

(C)

	1	$\frac{3}{8}$
3	3	$\frac{9}{8}$
$\frac{3}{4}$	$\frac{3}{4}$	$\frac{9}{8}$

(D) $= 1\left(3 + \frac{3}{4}\right) + 3\left(1 + \frac{3}{8}\right)$

(E) $= \left(\frac{8}{8} + \frac{3}{8}\right)\left(\frac{4}{4} + \frac{4}{4} + \frac{4}{4} + \frac{3}{4}\right)$

Scoring:

2 points: Selected B and E only.

1 point: Selected either B or E only.

Selected either B or E and only one other wrong answer.

0 points: Any other combination.

Key and Distractor Analysis:

A. Student probably thought they could just multiply the whole numbers and the fractions.

B. Key. Student is using multiple distribution.

C. Student is using area model but probably added $\frac{3}{8}$ and $\frac{3}{4}$ instead of multiplying them.

D. Student might be confusing multiple distribution. Mistake is multiplying 3 and 1 twice.

E. Key. Decomposing the mixed numbers in order to convert to improper fractions.

Number and Operations - Fractions

5.NF

Use equivalent fractions as a strategy to add and subtract fractions.

4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.