Topic: Adding and subtracting fractions

Question: Simplify the expression.

$$\frac{1}{5}+\frac{3}{7}$$

Answer choices:

A $\frac{11}{35}$

B $\frac{4}{12}$

C $\frac{3}{35}$

D $\frac{22}{35}$

Solution: D

To add two fractions, they must have the same denominator. To find a common denominator, we look for the least common multiple of the denominators of the two fractions, so we'll look for the least common multiple of 5 and 7. The smallest number that's divisible by 5 and 7 is 35, so 35 is the least common multiple. Since $35 = 5 \cdot 7$, we have to multiply the numerator and denominator of the first fraction $(1/5)$ by 7, and we have to multiply the numerator and denominator of the second fraction $(3/7)$ by 5. Therefore, we get

$$\frac{1}{5} + \frac{3}{7}$$

$$\frac{1 \cdot 7}{5 \cdot 7} + \frac{3 \cdot 5}{7 \cdot 5}$$

$$\frac{7}{35} + \frac{15}{35}$$

$$\frac{7 + 15}{35}$$

$$\frac{22}{35}$$

Topic: Adding and subtracting fractions

Question: Complete the statement, “When finding a common denominator, we have to find the _____ of the two numbers.”

Answer choices:

A greatest common factor

B least common multiple

C sum of the denominators

D difference of the denominators

Solution: B

When finding a common denominator, we have to find the least common multiple of the two numbers.

Topic: Adding and subtracting fractions

Question: Simplify the expression.

$$\frac{10}{7} - \frac{6}{15}$$

Answer choices:

A $\frac{3}{4}$

B $\frac{7}{15}$

C $\frac{4}{8}$

D $\frac{36}{35}$

Solution: D

To subtract one fraction from another, they have to have a common denominator.

$$\frac{10}{7} - \frac{6}{15}$$

$$\frac{10}{7}\left(\frac{15}{15}\right) - \frac{6}{15}\left(\frac{7}{7}\right)$$

$$\frac{150}{105} - \frac{42}{105}$$

$$\frac{150 - 42}{105}$$

$$\frac{108}{105}$$

Reduce the fraction to its lowest terms.

$$\frac{108 \div 3}{105 \div 3}$$

$$\frac{36}{35}$$