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Multiplying Whole numbers by Fractions in the Form $a \cdot b/c$

When:

Finding the product of a whole number and a fraction.

How:

Given $a \cdot \frac{b}{c}$

- 1) Find the difference of c and b. Then find the difference of c and a.
- 2) Multiply the two numbers from step 1.
- 3) This is the numerator of the answer. The denominator is c. Simplify this fraction if necessary.
- 4) If the fraction is greater than 1, find the difference of b and c. Then add it to the whole number a .
If the fraction is less than 1, find the difference of c and b. Then subtract it the whole number a .
- 5) Add Steps 4 and 3.
- 6) This is the answer.

<p>Ex1) $3 \cdot \frac{5}{7} = \underline{\hspace{2cm}}$ mixed #</p> <ol style="list-style-type: none"> 1) $7 - 5 = 2, 7 - 3 = 4$ 2) $2 \times 4 = 8$ 3) The fraction is $\frac{8}{7}$, or $1 \frac{1}{7}$ 4) The fraction is less than 1 so $7 - 5 = 2$, thus $3 - 2 = 1$. 5) $1 + 1 \frac{1}{7} = 2 \frac{1}{7}$ 6) Answer = $2 \frac{1}{7}$ 	<p>Ex2) $13 \cdot \frac{10}{7} = \underline{\hspace{2cm}}$ mixed #</p> <ol style="list-style-type: none"> 1) $7 - 10 = -3, 7 - 13 = -6$ 2) $-3 \times (-6) = 18$ 3) The fraction is $\frac{18}{7}$, or $2 \frac{4}{7}$ 4) $\frac{10}{7}$ is greater than one, so $10 - 7 = 3$, thus $13 + 3 = 16$ 5) $16 + 2 \frac{4}{7} = 18 \frac{4}{7}$ 6) Answer = $18 \frac{4}{7}$ 	<p>Ex3) $8 \cdot \frac{5}{6} = \underline{\hspace{2cm}}$ mixed #</p> <ol style="list-style-type: none"> 1) $6 - 5 = 1, 6 - 8 = -2$ 2) $1 \times (-2) = -2$ 3) The fraction is $\frac{-2}{6}$ or $\frac{-1}{3}$ 4) $\frac{5}{6}$ is less than one, so $6 - 5 = 1$, thus $8 - 1 = 7$, 5) $7 + \left(\frac{-1}{3}\right) = 6 \frac{2}{3}$ 6) Answer = $6 \frac{2}{3}$
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1) $5 \times \frac{4}{3} = \underline{\hspace{2cm}}$ mixed #

11) $15 \times \frac{23}{25} = \underline{\hspace{2cm}}$ mixed #

2) $7 \times \frac{3}{2} = \underline{\hspace{2cm}}$ mixed #

12) $21 \times \frac{13}{12} = \underline{\hspace{2cm}}$ mixed #

3) $8 \times \frac{3}{7} = \underline{\hspace{2cm}}$ mixed #

13) $19 \times \frac{22}{16} = \underline{\hspace{2cm}}$ mixed #

4) $10 \times \frac{8}{9} = \underline{\hspace{2cm}}$ mixed #

14) $10 \times \frac{5}{8} = \underline{\hspace{2cm}}$ mixed #

5) $8 \times \frac{9}{7} = \underline{\hspace{2cm}}$ mixed #

15) $11 \times \frac{18}{14} = \underline{\hspace{2cm}}$ mixed #

6) $4 \times \frac{6}{7} = \underline{\hspace{2cm}}$ mixed #

16) $16 \times \frac{9}{13} = \underline{\hspace{2cm}}$ mixed #

7) $12 \times \frac{7}{5} = \underline{\hspace{2cm}}$ mixed #

17) $21 \times \frac{23}{22} = \underline{\hspace{2cm}}$ mixed #

8) $17 \times \frac{15}{19} = \underline{\hspace{2cm}}$ mixed #

18) $19 \times \frac{27}{24} = \underline{\hspace{2cm}}$ mixed #

9) $13 \times \frac{10}{11} = \underline{\hspace{2cm}}$ mixed #

19) $20 \times \frac{30}{29} = \underline{\hspace{2cm}}$ mixed #

10) $14 \times \frac{16}{17} = \underline{\hspace{2cm}}$ mixed #

20) $25 \times \frac{14}{19} = \underline{\hspace{2cm}}$ mixed #

Fractions Between a and b with Denominator c

When:

Determining the number of fractions between two numbers with a given denominator and integer numerator.

How:

Given the question: How many fractions are between a and b with denominator c . and an integer numerator d ?

- 1) Find the positive difference of the two numbers a and b .
- 2) Multiply step 1 by numerator c .
- 3) Subtract 1
- 4) This is the answer.

Note: This trick seems to have some special cases where it does not appear to work but it is still worth memorizing. If you ever come across one send me an email and we can work it out.

<p>Ex1) How many fractions are between 2 and 8, have a denominator 6 with an integer numerator?</p> <ol style="list-style-type: none">1) $8 - 2 = 6$2) $6 \times 6 = 36$3) $36 - 1 = 35$4) The answer is 35.	<p>Ex2) Find how many fractions between $2\frac{1}{3}$ and $4\frac{2}{3}$ have a denominator of 9 with an integer numerator?</p> <ol style="list-style-type: none">1) $4\frac{2}{3} - 2\frac{1}{3} = 2\frac{1}{3}$2) $2\frac{1}{3} \times 9 = 21$3) $21 - 1 = 20$4) The answer is 20.
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- 1) How many fractions are between 5 and 9, have a denominator 3 with an integer numerator?
- 2) How many fractions are between 4 and 11, have a denominator 7 and an integer numerator?
- 3) How many fractions are between 15 and 33, have a denominator 4 with an integer numerator?
- 4) How many fractions are between 0.5 and 2.5, have a denominator 4 with an integer numerator?
- 5) How many fractions are between 0.9 and 1.1, have a denominator 30 with an integer numerator?
- 6) How many fractions are between 0.3 and 0.9, have a denominator 10 with an integer numerator?
- 7) How many fractions are between $1\frac{1}{3}$ and $2\frac{2}{3}$, have a denominator 6 with an integer numerator?
- 8) How many fractions are between $5\frac{5}{9}$ and $6\frac{8}{9}$, have a denominator 9 with an integer numerator?
- 9) How many fractions are between $7\frac{2}{3}$ and $9\frac{1}{3}$, have a denominator 12 with an integer numerator?
- 10) How many fractions are between $5\frac{1}{7}$ and $6\frac{3}{7}$, have a denominator 14 with an integer numerator?