

LESSON 20

Addition Of Unlike Fractions

(The Common Denominator Is The Product)

Unlike fractions that have denominators with no primes in common (relatively prime) have a common denominator that is the product of the denominators.

Example: Add $\frac{3}{8} + \frac{2}{5}$

Solution: The common denominator is $8 \times 5 = 40$.
The equivalent fractions are:

$$\frac{3}{8} = \frac{15}{40} \qquad \frac{2}{5} = \frac{16}{40}$$

We can cross multiply

$$\begin{array}{cc} \frac{3}{8} & \times & \frac{2}{5} \\ \swarrow & & \searrow \\ & & \end{array}$$

$$\frac{15 + 16}{40} = \frac{31}{40}$$

Add Each Pair Of Unlike Fractions Using The Product Of The Denominators

<p>1.</p> $\frac{1}{2} + \frac{1}{3}$ $\frac{3 + 2}{6} = \frac{5}{6}$	<p>6.</p> $\frac{2}{3} + \frac{1}{5}$ $\frac{10 + 3}{15} = \frac{13}{15}$	<p>11.</p> $\frac{1}{2} + \frac{4}{9}$ $\frac{9 + 8}{18} = \frac{17}{18}$
<p>2.</p> $\frac{2}{3} + \frac{3}{4}$ $\frac{8 + 9}{12} = \frac{17}{12}$	<p>7.</p> $\frac{1}{2} + \frac{2}{9}$ $\frac{9 + 4}{18} = \frac{13}{18}$	<p>12.</p> $\frac{1}{3} + \frac{5}{8}$ $\frac{8 + 15}{24} = \frac{23}{24}$
<p>3.</p> $\frac{1}{2} + \frac{1}{9}$ $\frac{9 + 2}{18} = \frac{11}{18}$	<p>8.</p> $\frac{1}{3} + \frac{3}{8}$ $\frac{8 + 9}{24} = \frac{17}{24}$	<p>13.</p> $\frac{1}{2} + \frac{2}{5}$ $\frac{5 + 4}{10} = \frac{9}{10}$
<p>4.</p> $\frac{2}{3} + \frac{1}{8}$ $\frac{16 + 3}{24} = \frac{19}{24}$	<p>9.</p> $\frac{1}{2} + \frac{1}{5}$ $\frac{5 + 2}{10} = \frac{7}{10}$	<p>14.</p> $\frac{2}{3} + \frac{3}{5}$ $\frac{10 + 9}{15} = \frac{19}{15}$
<p>5.</p> $\frac{1}{2} + \frac{2}{3}$ $\frac{3 + 4}{6} = \frac{7}{6}$	<p>10.</p> $\frac{2}{3} + \frac{2}{5}$ $\frac{10 + 6}{15} = \frac{16}{15}$	<p>15.</p> $\frac{1}{2} + \frac{5}{9}$ $\frac{9 + 10}{18} = \frac{19}{18}$

Add Each Pair Of Unlike Fractions Using The Product Of The Denominators

<p>16.</p> $\frac{1}{3} + \frac{7}{8}$ $\frac{8 + 21}{24} = \frac{29}{24}$	<p>21.</p> $\frac{1}{4} + \frac{2}{5}$ $\frac{5 + 8}{20} = \frac{13}{20}$	<p>26.</p> $\frac{1}{4} + \frac{3}{5}$ $\frac{5 + 12}{20} = \frac{17}{20}$
<p>17.</p> $\frac{1}{2} + \frac{3}{5}$ $\frac{5 + 6}{10} = \frac{11}{10}$	<p>22.</p> $\frac{1}{2} + \frac{4}{5}$ $\frac{5 + 8}{10} = \frac{13}{10}$	<p>27.</p> $\frac{1}{2} + \frac{1}{7}$ $\frac{7 + 2}{14} = \frac{9}{14}$
<p>18.</p> $\frac{2}{3} + \frac{4}{5}$ $\frac{10 + 12}{15} = \frac{22}{15}$	<p>23.</p> $\frac{1}{3} + \frac{1}{7}$ $\frac{7 + 3}{21} = \frac{10}{21}$	<p>28.</p> $\frac{1}{3} + \frac{2}{7}$ $\frac{7 + 6}{21} = \frac{13}{21}$
<p>19.</p> $\frac{1}{2} + \frac{7}{9}$ $\frac{9 + 14}{18} = \frac{23}{18}$	<p>24.</p> $\frac{1}{3} + \frac{1}{4}$ $\frac{4 + 3}{12} = \frac{7}{12}$	<p>29.</p> $\frac{1}{3} + \frac{3}{4}$ $\frac{4 + 9}{12} = \frac{13}{12}$
<p>20.</p> $\frac{2}{3} + \frac{1}{7}$ $\frac{14 + 3}{21} = \frac{17}{21}$	<p>25.</p> $\frac{2}{3} + \frac{2}{7}$ $\frac{14 + 6}{21} = \frac{20}{21}$	<p>30.</p> $\frac{2}{3} + \frac{3}{7}$ $\frac{14 + 9}{21} = \frac{23}{21}$

Add Each Pair Of Unlike Fractions Using The Product Of The Denominators

<p>31.</p> $\frac{1}{4} + \frac{4}{5}$ $\frac{5 + 16}{20} = \frac{21}{20}$	<p>36.</p> $\frac{1}{4} + \frac{1}{7}$ $\frac{7 + 4}{28} = \frac{11}{28}$	<p>41.</p> $\frac{1}{4} + \frac{2}{7}$ $\frac{7 + 8}{28} = \frac{15}{28}$
<p>32.</p> $\frac{1}{2} + \frac{2}{7}$ $\frac{7 + 4}{14} = \frac{11}{14}$	<p>37.</p> $\frac{1}{2} + \frac{3}{7}$ $\frac{7 + 6}{14} = \frac{13}{14}$	<p>42.</p> $\frac{1}{2} + \frac{4}{7}$ $\frac{7 + 8}{14} = \frac{15}{14}$
<p>33.</p> $\frac{1}{3} + \frac{3}{7}$ $\frac{7 + 9}{21} = \frac{16}{21}$	<p>38.</p> $\frac{1}{3} + \frac{4}{7}$ $\frac{7 + 12}{21} = \frac{19}{21}$	<p>43.</p> $\frac{1}{3} + \frac{5}{7}$ $\frac{7 + 15}{21} = \frac{22}{21}$
<p>34.</p> $\frac{1}{3} + \frac{1}{5}$ $\frac{5 + 3}{15} = \frac{8}{15}$	<p>39.</p> $\frac{1}{3} + \frac{2}{5}$ $\frac{5 + 6}{15} = \frac{11}{15}$	<p>44.</p> $\frac{1}{3} + \frac{3}{5}$ $\frac{5 + 9}{15} = \frac{14}{15}$
<p>35.</p> $\frac{2}{3} + \frac{4}{7}$ $\frac{14 + 12}{21} = \frac{26}{21}$	<p>40.</p> $\frac{2}{3} + \frac{5}{7}$ $\frac{14 + 15}{21} = \frac{29}{21}$	<p>45.</p> $\frac{2}{3} + \frac{6}{7}$ $\frac{14 + 18}{21} = \frac{32}{21}$

Add Each Pair Of Unlike Fractions Using The Product Of The Denominators

<p>46.</p> $\frac{1}{4} + \frac{3}{7}$ $\frac{7 + 12}{28} = \frac{19}{28}$	<p>51.</p> $\frac{1}{4} + \frac{4}{7}$ $\frac{7 + 16}{28} = \frac{23}{28}$	<p>56.</p> $\frac{1}{4} + \frac{5}{7}$ $\frac{7 + 20}{28} = \frac{27}{28}$
<p>47.</p> $\frac{1}{2} + \frac{5}{7}$ $\frac{7 + 10}{14} = \frac{17}{14}$	<p>52.</p> $\frac{1}{2} + \frac{6}{7}$ $\frac{7 + 12}{14} = \frac{19}{14}$	<p>57.</p> $\frac{1}{4} + \frac{2}{9}$ $\frac{9 + 8}{36} = \frac{17}{36}$
<p>48.</p> $\frac{6}{7} + \frac{1}{3}$ $\frac{18 + 7}{21} = \frac{25}{21}$	<p>53.</p> $\frac{1}{3} + \frac{1}{8}$ $\frac{8 + 3}{24} = \frac{11}{24}$	<p>58.</p> $\frac{1}{4} + \frac{4}{9}$ $\frac{9 + 16}{36} = \frac{25}{36}$
<p>48.</p> $\frac{1}{3} + \frac{4}{5}$ $\frac{5 + 12}{15} = \frac{17}{15}$	<p>54.</p> $\frac{2}{3} + \frac{1}{4}$ $\frac{8 + 3}{12} = \frac{11}{12}$	<p>59.</p> $\frac{1}{3} + \frac{1}{10}$ $\frac{10 + 3}{30} = \frac{13}{30}$
<p>50.</p> $\frac{2}{3} + \frac{3}{8}$ $\frac{16 + 9}{24} = \frac{25}{24}$	<p>55.</p> $\frac{2}{3} + \frac{5}{8}$ $\frac{16 + 15}{24} = \frac{31}{24}$	<p>60.</p> $\frac{2}{3} + \frac{7}{8}$ $\frac{16 + 21}{24} = \frac{37}{24}$

Add Each Pair Of Unlike Fractions Using The Product Of The Denominators

<p>61.</p> $\frac{1}{4} + \frac{6}{7}$ $\frac{7 + 24}{28} = \frac{31}{28}$	<p>66.</p> $\frac{1}{4} + \frac{1}{9}$ $\frac{9 + 4}{36} = \frac{13}{36}$	<p>71.</p> $\frac{3}{4} + \frac{2}{5}$ $\frac{15 + 8}{20} = \frac{23}{20}$
<p>62.</p> $\frac{1}{3} + \frac{3}{10}$ $\frac{10 + 9}{30} = \frac{19}{30}$	<p>67.</p> $\frac{1}{3} + \frac{7}{10}$ $\frac{10 + 21}{30} = \frac{31}{30}$	<p>72.</p> $\frac{2}{3} + \frac{3}{10}$ $\frac{20 + 9}{30} = \frac{29}{30}$
<p>63.</p> $\frac{1}{4} + \frac{5}{9}$ $\frac{9 + 20}{36} = \frac{29}{36}$	<p>68.</p> $\frac{3}{4} + \frac{1}{5}$ $\frac{15 + 4}{20} = \frac{19}{20}$	<p>73.</p> $\frac{9}{10} + \frac{2}{3}$ $\frac{27 + 20}{30} = \frac{47}{30}$
<p>64.</p> $\frac{1}{4} + \frac{7}{9}$ $\frac{9 + 28}{36} = \frac{37}{36}$	<p>69.</p> $\frac{2}{3} + \frac{1}{10}$ $\frac{20 + 3}{30} = \frac{23}{30}$	<p>74.</p> $\frac{3}{4} + \frac{3}{5}$ $\frac{15 + 12}{20} = \frac{27}{20}$
<p>65.</p> $\frac{1}{4} + \frac{1}{5}$ $\frac{5 + 4}{20} = \frac{9}{20}$	<p>70.</p> $\frac{1}{3} + \frac{9}{10}$ $\frac{10 + 27}{30} = \frac{37}{30}$	<p>75.</p> $\frac{2}{3} + \frac{7}{10}$ $\frac{20 + 21}{30} = \frac{41}{30}$