

Prealgebra

Operations with Fractions: More Reducing, Addition, Multiplication  
and Solving Linear Equations

Table 1: Reduce the following fractions. Remember you can always look at the prime factorization to decide what to cancel.

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|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| 1. $-\frac{25}{125}$   | 2. $\frac{142}{306}$   | 3. $\frac{318}{405}$   | 4. $\frac{154}{266}$   | 5. $\frac{195}{57}$    | 6. $\frac{276}{172}$   |
| 7. $\frac{305}{122}$   | 8. $-\frac{117}{228}$  | 9. $\frac{207}{45}$    | 10. $\frac{4}{188}$    | 11. $-\frac{60}{202}$  | 12. $\frac{220}{64}$   |
| 13. $\frac{462}{39}$   | 14. $\frac{258}{273}$  | 15. $-\frac{54}{69}$   | 16. $\frac{438}{38}$   | 17. $-\frac{286}{222}$ | 18. $\frac{134}{422}$  |
| 19. $\frac{174}{166}$  | 20. $\frac{210}{484}$  | 21. $\frac{357}{225}$  | 22. $-\frac{402}{94}$  | 23. $\frac{207}{420}$  | 24. $\frac{342}{296}$  |
| 25. $\frac{454}{112}$  | 26. $-\frac{44}{392}$  | 27. $-\frac{102}{213}$ | 28. $\frac{329}{376}$  | 29. $\frac{238}{161}$  | 30. $\frac{468}{150}$  |
| 31. $\frac{132}{302}$  | 32. $-\frac{333}{342}$ | 33. $\frac{447}{12}$   | 34. $-\frac{459}{342}$ | 35. $\frac{117}{192}$  | 36. $-\frac{434}{150}$ |
| 37. $-\frac{110}{415}$ | 38. $-\frac{230}{120}$ | 39. $-\frac{430}{387}$ | 40. $\frac{2}{274}$    |                        |                        |

Table 2: Add or subtract the following pairs of numbers.

1.  $-\frac{4}{13} + \frac{11}{13}$
2.  $\frac{6}{5} - -\frac{2}{5}$
3.  $-\frac{1}{3} + -\frac{11}{12}$
4.  $\frac{29}{46} - -\frac{27}{38}$
5.  $-\frac{9}{8} + \frac{61}{60}$
6.  $-\frac{1}{4} + 1$
7.  $-\frac{5}{8} + \frac{17}{30}$
8.  $-\frac{27}{47} + \frac{6}{47}$
9.  $-\frac{41}{49} + 1$
10.  $\frac{6}{25} + \frac{2}{15}$
11.  $\frac{11}{15} + \frac{20}{27}$
12.  $\frac{32}{31} - 1$
13.  $-\frac{33}{41} - 1$
14.  $1 - \frac{3}{5}$
15.  $\frac{4}{33} - -\frac{1}{6}$
16.  $-\frac{43}{57} + -\frac{5}{9}$
17.  $-\frac{8}{11} + -\frac{17}{33}$
18.  $\frac{4}{7} - 1$
19.  $-\frac{17}{21} + \frac{1}{18}$
20.  $-\frac{16}{17} - \frac{15}{17}$
21.  $\frac{7}{26} - -\frac{9}{32}$
22.  $-\frac{7}{46} + 1$
23.  $\frac{7}{6} + -\frac{1}{18}$
24.  $1 - -\frac{3}{8}$
25.  $-\frac{9}{41} + 1$
26.  $\frac{5}{19} - 1$
27.  $\frac{33}{38} - \frac{1}{8}$
28.  $\frac{13}{60} + \frac{1}{22}$
29.  $-\frac{21}{22} - -\frac{6}{55}$
30.  $\frac{2}{9} - \frac{23}{54}$
31.  $\frac{23}{43} + 1$
32.  $\frac{17}{35} + -\frac{6}{7}$
33.  $\frac{9}{13} - 1$
34.  $-\frac{16}{55} - 1$
35.  $1 - \frac{13}{22}$
36.  $\frac{31}{40} + -\frac{15}{46}$
37.  $-\frac{3}{20} + \frac{1}{2}$
38.  $-\frac{3}{5} + 1$
39.  $\frac{16}{47} - 1$
40.  $-\frac{1}{8} - \frac{5}{14}$

Table 3: Add or subtract the following triples of numbers.

1.  $\frac{19}{20} + -\frac{1}{6} - \frac{23}{38}$
2.  $\frac{14}{15} + -\frac{1}{6} - -\frac{19}{21}$
3.  $-\frac{1}{4} - \frac{1}{18} + -\frac{13}{18}$
4.  $\frac{1}{3} + 1 + -\frac{12}{19}$
5.  $\frac{5}{6} + \frac{8}{9} + -\frac{31}{30}$
6.  $\frac{4}{25} + -\frac{1}{35} + \frac{5}{7}$
7.  $-\frac{21}{25} + 1 - -\frac{9}{22}$
8.  $\frac{18}{29} - \frac{2}{29} - 1$
9.  $-\frac{1}{5} + 1 - 1$
10.  $-\frac{14}{41} - -\frac{18}{41} - 1$
11.  $-\frac{6}{29} + 1 + 1$
12.  $\frac{35}{36} - \frac{20}{21} + 1$
13.  $-\frac{3}{22} - \frac{21}{32} + \frac{1}{18}$
14.  $-\frac{1}{9} - 1 - 1$
15.  $\frac{4}{7} - -\frac{5}{7} - -\frac{2}{7}$
16.  $\frac{11}{14} + \frac{3}{4} - 1$
17.  $\frac{12}{37} - 1 - \frac{3}{7}$
18.  $\frac{39}{41} + 1 - \frac{5}{9}$
19.  $\frac{6}{11} - -\frac{3}{22} - \frac{3}{10}$
20.  $\frac{9}{13} - -\frac{11}{13} + \frac{4}{13}$
21.  $\frac{19}{18} - -\frac{5}{12} - -\frac{31}{36}$
22.  $\frac{22}{41} - -\frac{34}{41} + 1$
23.  $-\frac{1}{4} - 1 - \frac{9}{22}$
24.  $2 + \frac{1}{3} + 1$
25.  $\frac{1}{22} - \frac{1}{8} + \frac{3}{4}$
26.  $-\frac{9}{20} + \frac{1}{2} + \frac{1}{30}$
27.  $\frac{1}{5} + 1 + -\frac{2}{9}$
28.  $\frac{8}{41} - -\frac{17}{41} + 2$
29.  $1 + -\frac{9}{26} - \frac{13}{32}$
30.  $\frac{12}{25} - -\frac{4}{5} - -\frac{22}{25}$

Table 4: Multiply the following numbers.

- |   |  |   |  |   |
|---|--|---|--|---|
| 1. $\frac{16}{45} \cdot \frac{15}{28}$    | 2. $\frac{14}{17} \cdot -\frac{37}{50}$  | 3. $\frac{41}{74} \cdot -\frac{46}{71}$ | 4. $-\frac{31}{38} \cdot -\frac{16}{17}$ | 5. $\frac{11}{54} \cdot -\frac{12}{13}$   |
| 6. $\frac{7}{13} \cdot \frac{9}{77}$      | 7. $-\frac{14}{15} \cdot -\frac{21}{32}$ | 8. $\frac{1}{4} \cdot \frac{46}{59}$    | 9. $\frac{4}{11} \cdot \frac{13}{14}$    | 10. $-\frac{13}{18} \cdot -\frac{10}{19}$ |
| 11. $-\frac{1}{9} \cdot -\frac{3}{5}$     | 12. $\frac{11}{24} \cdot -\frac{14}{15}$ | 13. $-\frac{1}{2} \cdot -\frac{2}{33}$  | 14. $-\frac{9}{56} \cdot -\frac{49}{75}$ | 15. $-\frac{7}{37} \cdot \frac{57}{70}$   |
| 16. $-\frac{15}{32} \cdot -\frac{25}{66}$ | 17. $-\frac{3}{4} \cdot -\frac{1}{3}$    | 18. $-\frac{6}{31} \cdot -\frac{1}{21}$ | 19. $\frac{27}{68} \cdot -\frac{4}{9}$   | 20. $\frac{4}{7} \cdot -\frac{7}{18}$     |
| 21. $\frac{5}{9} \cdot -\frac{31}{35}$    | 22. $-\frac{2}{3} \cdot \frac{60}{71}$   | 23. $-\frac{17}{73} \cdot \frac{7}{17}$ | 24. $-\frac{16}{27} \cdot \frac{6}{7}$   | 25. $-\frac{7}{20} \cdot \frac{42}{53}$   |
| 26. $\frac{1}{3} \cdot \frac{51}{58}$     | 27. $-\frac{5}{53} \cdot \frac{3}{5}$    | 28. $\frac{7}{8} \cdot \frac{44}{69}$   | 29. $-\frac{3}{28} \cdot -\frac{5}{6}$   | 30. $\frac{2}{11} \cdot \frac{11}{35}$    |
| 31. $-\frac{3}{13} \cdot -\frac{17}{18}$  | 32. $-\frac{5}{23} \cdot -\frac{4}{5}$   | 33. $\frac{21}{22} \cdot \frac{26}{45}$ | 34. $-\frac{2}{15} \cdot -\frac{5}{9}$   | 35. $\frac{16}{29} \cdot -\frac{1}{6}$    |
| 36. $-\frac{1}{3} \cdot -\frac{30}{31}$   | 37. $\frac{1}{2} \cdot \frac{2}{39}$     | 38. $-\frac{5}{6} \cdot -\frac{41}{45}$ | 39. $\frac{33}{35} \cdot \frac{37}{72}$  | 40. $\frac{41}{53} \cdot -\frac{2}{41}$   |

Table 5: Solve to following linear equations.

1.  $-\frac{8}{5}x - 1 = -\frac{4}{13}$
2.  $-\frac{18}{13}x + -\frac{11}{20} = -\frac{5}{32}$
3.  $\frac{5}{2}x + \frac{17}{3} = -\frac{33}{23}$
4.  $-\frac{19}{35}x + \frac{13}{24} = 1$
5.  $\frac{9}{11}x - 8 = \frac{5}{7}$
6.  $-\frac{20}{31}x = -\frac{29}{32}$
7.  $\frac{19}{25}x - \frac{1}{9} = \frac{5}{14}$
8.  $-\frac{2}{5}x - \frac{19}{30} = \frac{5}{28}$
9.  $\frac{32}{11}x - \frac{30}{37} = \frac{28}{13}$
10.  $\frac{13}{37}x - \frac{2}{37} = 1$
11.  $-\frac{13}{20}x = 0$
12.  $\frac{3}{4}x + \frac{9}{5} = -\frac{12}{31}$
13.  $x = \frac{4}{5}$
14.  $2x - -\frac{3}{4} = \frac{29}{8}$
15.  $-\frac{33}{25}x + 1 = -\frac{17}{18}$
16.  $\frac{17}{3}x + -\frac{17}{15} = \frac{5}{33}$
17.  $9x - \frac{11}{16} = -\frac{9}{2}$
18.  $\frac{35}{19}x - 5 = \frac{19}{31}$
19.  $x - \frac{20}{19} = \frac{28}{19}$
20.  $-\frac{2}{15}x - -\frac{6}{5} = -\frac{17}{31}$
21.  $-\frac{11}{23}x = -\frac{26}{5}$
22.  $-\frac{15}{37}x + 1 = \frac{23}{33}$
23.  $\frac{23}{32}x - 1 = \frac{27}{35}$
24.  $-\frac{9}{2}x - -\frac{11}{26} = -\frac{11}{27}$
25.  $8x - -\frac{18}{5} = 1$
26.  $2x - \frac{34}{15} = \frac{6}{5}$
27.  $-\frac{1}{3}x + -\frac{17}{18} = 9$
28.  $-\frac{28}{25}x - \frac{37}{30} = \frac{6}{31}$
29.  $\frac{18}{17}x - 2 = -\frac{37}{7}$
30.  $-\frac{1}{7}x + -\frac{10}{7} = \frac{4}{7}$
31.  $\frac{20}{3}x - \frac{4}{3} = 34$
32.  $\frac{17}{21}x - -\frac{11}{17} = \frac{29}{36}$
33.  $-\frac{11}{18}x + \frac{1}{20} = \frac{7}{36}$
34.  $-\frac{11}{3}x = -\frac{7}{3}$
35.  $-\frac{11}{4}x + \frac{3}{22} = 1$
36.  $-\frac{7}{31}x - 10 = -\frac{8}{17}$
37.  $\frac{36}{13}x - 1 = -\frac{13}{12}$
38.  $-\frac{7}{8}x + \frac{11}{18} = 0$
39.  $-\frac{8}{5}x + -\frac{31}{26} = -\frac{1}{16}$
40.  $\frac{25}{4}x - 3 = -\frac{33}{26}$
41.  $-\frac{3}{2}x - -\frac{11}{2} = -\frac{35}{26}$
42.  $-\frac{11}{26}x - -\frac{3}{23} = \frac{21}{31}$
43.  $\frac{1}{4}x + 2 = -\frac{34}{37}$
44.  $-\frac{10}{11}x - -\frac{34}{31} = \frac{3}{26}$
45.  $\frac{15}{34}x + \frac{5}{4} = \frac{1}{32}$
46.  $\frac{7}{22}x + \frac{1}{5} = -\frac{18}{17}$
47.  $\frac{9}{2}x + -\frac{4}{31} = -\frac{1}{6}$
48.  $-\frac{1}{11}x = \frac{2}{3}$
49.  $\frac{17}{23}x + 2 = -\frac{29}{17}$
50.  $\frac{3}{7}x - \frac{14}{5} = \frac{10}{19}$