

LESSON 8

Reducing Fractions By Prime Factorization

A fraction can be reduced by writing a prime factorization of the numerator and the denominator then cancelling the like factors.

Example 1: Reduce $\frac{26}{65}$

$$\frac{26}{65} = \frac{2 \times \overset{\cdot}{\underset{\cdot}{\circlearrowleft}}{13}}{5 \times \underset{\cdot}{\underset{\cdot}{\circlearrowleft}}{13}} = \frac{2}{5}$$

Example 2: Reduce $\frac{52}{65}$

$$\frac{52}{65} = \frac{2 \times 2 \times \overset{\cdot}{\underset{\cdot}{\circlearrowleft}}{13}}{5 \times \underset{\cdot}{\underset{\cdot}{\circlearrowleft}}{13}} = \frac{4}{5}$$

Example 3: Reduce $\frac{13}{26}$

$$\frac{13}{26} = \frac{\overset{\cdot}{\underset{\cdot}{\circlearrowleft}}{13}}{2 \times \underset{\cdot}{\underset{\cdot}{\circlearrowleft}}{13}} = \frac{1}{2}$$

Write The Prime Factorization Find The Reduced Fraction

$1. \quad \frac{33}{77} = \frac{3 \times 11}{7 \times 11} = \frac{3}{7}$	$11. \quad \frac{57}{95} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$
$2. \quad \frac{19}{95} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$	$12. \quad \frac{41}{82} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$
$3. \quad \frac{19}{38} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$	$13. \quad \frac{22}{33} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$
$4. \quad \frac{13}{65} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$	$14. \quad \frac{57}{76} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$
$5. \quad \frac{34}{68} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$	$15. \quad \frac{34}{51} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$
$6. \quad \frac{17}{85} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$	$16. \quad \frac{17}{51} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$
$7. \quad \frac{62}{93} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$	$17. \quad \frac{22}{88} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$
$8. \quad \frac{55}{66} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$	$18. \quad \frac{34}{85} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$
$9. \quad \frac{13}{39} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$	$19. \quad \frac{23}{46} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$
$10. \quad \frac{23}{92} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$	$20. \quad \frac{43}{86} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

Write The Prime Factorization

Find The Reduced Fraction

21. $\frac{29}{87} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$	31. $\frac{22}{55} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$
22. $\frac{26}{39} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$	32. $\frac{19}{57} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$
23. $\frac{47}{94} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$	33. $\frac{29}{58} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$
24. $\frac{65}{91} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$	34. $\frac{23}{69} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$
25. $\frac{65}{78} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$	35. $\frac{26}{91} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$
26. $\frac{17}{34} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$	36. $\frac{46}{92} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$
27. $\frac{39}{78} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$	37. $\frac{37}{74} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$
28. $\frac{17}{68} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$	38. $\frac{46}{69} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$
29. $\frac{39}{65} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$	39. $\frac{22}{77} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$
30. $\frac{31}{93} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$	40. $\frac{26}{52} = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$

Write The Prime Factorization

Find The Reduced Fraction

41. $\frac{58}{87} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

51. $\frac{33}{44} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

42. $\frac{22}{99} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

52. $\frac{26}{78} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

43. $\frac{39}{52} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

53. $\frac{33}{55} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

44. $\frac{33}{66} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

54. $\frac{78}{91} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

45. $\frac{13}{91} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

55. $\frac{22}{66} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

46. $\frac{13}{52} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

56. $\frac{31}{62} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

47. $\frac{69}{92} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

57. $\frac{38}{57} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

48. $\frac{52}{91} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

58. $\frac{39}{91} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

49. $\frac{13}{78} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

59. $\frac{19}{76} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

50. $\frac{52}{78} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

60. $\frac{38}{95} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$