

# Math Power

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## MAP 260 (T2) Issue 3

### Operations on Fractions

Must simplify the fraction of your answer to its lowest terms.

1.  $\frac{4}{5} \times \frac{5}{6} \div \frac{7}{5} =$

2. 
$$\begin{array}{r} 4\frac{1}{2} \\ + 5\frac{1}{6} \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 5\frac{1}{3} \\ - 2\frac{5}{9} \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 3\frac{1}{3} \\ + 2\frac{1}{4} \\ + 1\frac{1}{5} \\ \hline \end{array}$$

5.  $\frac{9}{20} \times 1\frac{3}{7} =$

6.  $\frac{10}{7} \times \frac{3}{20} \times \frac{11}{9} =$

7.  $1\frac{3}{5} \times 3\frac{3}{4} =$

8.  $1\frac{4}{5} \times \frac{10}{18} =$

9.  $\frac{3}{10} \div \frac{5}{6} =$

10.  $\frac{3}{10} \div 1\frac{5}{6} =$

11.  $2\frac{1}{10} \div 1\frac{1}{5} =$

12.  $\frac{1}{2} + \frac{2}{3} =$

13.  $\frac{1}{3} - \frac{1}{4} + \frac{1}{5} =$

14.  $2\frac{1}{3} - \frac{1}{2} =$

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15.  $2\frac{1}{2} - \frac{2}{3} =$

22.  $\frac{5}{7} \times 84 =$

16.  $3\frac{1}{3} + 2\frac{1}{2} + 1 =$

23.  $\frac{2}{9} \times 216 =$

17.  $4 - \frac{1}{2} - \frac{1}{5} =$

24.  $\frac{5}{6} \times 90 =$

18.  $3\frac{1}{2} + 4\frac{1}{5} - 3 =$

25.  $\frac{5}{9} \times 153 =$

19.  $5\frac{4}{5} - 3\frac{2}{3} + 2 =$

26.  $54 \times \frac{5}{6} =$

20.  $\frac{2}{25} \times \frac{5}{8} =$

27.  $198 \times \frac{4}{9} =$

### Operations on Fractions

Must simplify the fraction of your answer to its lowest terms.

21.  $68 \times \frac{3}{4} =$

28.  $\frac{7}{9} \times 180 =$

29.  $\frac{5}{9} \times 108 =$

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30.  $\frac{2}{5} \times 45 =$

38.  $\sqrt{56} =$

31. 
$$\begin{array}{r} 3\frac{4}{5} \\ - 2\frac{3}{4} \\ \hline \end{array}$$

39.  $\sqrt{396} =$

40.  $\sqrt{360} =$

### Simplifying Radicals

32.  $\sqrt{48} =$

41.  $\sqrt{288} =$

33.  $\sqrt{128} =$

### The Power of Powers

42.  $11^2 =$

34.  $\sqrt{288} =$

43.  $12^2 =$

35.  $\sqrt{648} =$

44.  $13^2 =$

36.  $\sqrt{972} =$

45.  $14^2 =$

37.  $\sqrt{24} =$

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46.  $15^2 =$

54.  $(\frac{1}{9})^{-1} =$

47.  $16^2 =$

55.  $6^{-1} =$

48.  $17^2 =$

56.  $(\frac{1}{10})^{-3} =$

49.  $18^2 =$

57.  $(\frac{1}{7})^{-2} =$

50.  $19^2 =$

58.  $(\frac{1}{6})^{-3} =$

51.  $20^2 =$

59.  $5^{-2} =$

52.  $50^{-1} =$

60.  $10^2 =$

53.  $(\frac{1}{10})^{-1} =$

61.  $19^2 =$

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### Negative Powers (-1)

- $3^{-1} = \frac{1}{3}$
- $3^{-2} = \frac{1}{9}$
- $\left(\frac{2}{3}\right)^{-1} = \frac{3}{2}$
- $\left(1\frac{2}{3}\right)^{-1} = \left(\frac{5}{3}\right)^{-1} = \frac{3}{5}$

68.  $(1/5)^{-1} =$

69.  $(1\frac{2}{5})^{-1} =$

62.  $(2/17)^{-1} =$

70.  $(1\frac{4}{5})^{-1} =$

63.  $(3/4)^{-1} =$

71.  $(2\frac{6}{5})^{-1} =$

64.  $(3/7)^{-1} =$

### Signed Numbers

72.  $(-4) + (-9) =$

65.  $(1/4)^{-1} =$

73.  $(-7) + (-2) =$

66.  $(5/4)^{-1} =$

74.  $(-5) + (-4) =$

67.  $(9/4)^{-1} =$

75.  $(-9) + (-8) =$

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76.  $(-8) + (-7) =$

77.  $(-7) - (-6) =$

78.  $(-3) - (-2) =$

79.  $(-8) - (-5) =$

80.  $(-7) - (-7) =$

81.  $(-4) - (-7) =$

83. Earl lost 12 pounds from his original weight of 96 pounds. What is the percentage of his weight loss?

84. The table shows how many T-shirts of each color Paul has in his closet.

Color	Number of Shirts
Green	3
Red	4
White	5
Blue	8
<b>Total</b>	<b>20</b>

If Paul chooses a T-shirt without looking, what is the probability that it will be blue?

- A) 4%
- B) 8%
- C) 20%
- D) 40%

85. Mason has 10 black, 12 white, and 3 brown pairs of socks in one drawer. What is the probability that he would pick a brown pair of socks from the drawer?

- A) 4%
- B) 12%
- C) 14%
- D) 33%

### Percent

What is Percent? The word *percent* comes from the Latin words Per Centum meaning “by the hundred” or “for every hundred”.

82. What fraction of \$2.00 is 50 cents?

86. BHA is a preservative that is added to foods to keep it fresh. A can of shelled walnuts, for example, contains 0.2% BHA. Express this percent as a fraction in simplest form.

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87. Eileen spent 45 of 60 minutes on video games. What percent of the time did she spend on video game?

93. There are 16 boys and 9 girls in a classroom. What percent of the class are boys and girls, respectively?

### Question set [88 - 89]

Pure gold is 24 karat, containing 100% of gold. Find the precise percentage of each following gold.

88. 18 karat gold

89. 14 karat gold

90. 100 votes out of 250 voted for Bill in a school election. What percentage of the total votes did he get?

91. Jimmy spent 6 hours working on his science project. What percent of a day was spent on his project?

92. A class has 15 boys and 10 girls. What percent of the class are girls?

### Question set [94 - 98]

Factors and multiples.

94. How many whole numbers from 1 to 120 are divisible by 3?

95. How many whole numbers from 12 to 21 are divisible by 3?

96. How many whole numbers from 12 to 120 are divisible by 3?

97. How many whole numbers from 12 to 1200 are divisible by 4?

98. How many multiples of 5 are there between 10 and 1000?



# Answer Key

- |   |                           |
|---|---------------------------|
| 1. $\frac{10}{21} = 10/21$  | 33. $8\sqrt{2}$           |
| 2. $\begin{array}{r} 4\frac{1}{2} \\ + 5\frac{1}{6} \\ \hline \end{array} = 9\frac{2}{3} = 9\frac{2}{3}$                  | 34. $12\sqrt{2}$          |
| 3. $2\frac{7}{9} = 2\frac{7}{9}$  | 35. $18\sqrt{2}$          |
| 4. $6\frac{47}{60} = 6\frac{47}{60}$  | 36. $18\sqrt{3}$          |
| 5. $\frac{9}{14} = 9/14$  | 37. $2\sqrt{6}$           |
| 6. $\frac{11}{42} = 11/42$  | 38. $2\sqrt{14}$          |
| 7. 6  | 39. $6\sqrt{11}$          |
| 8. 1  | 40. $6\sqrt{10}$          |
| 9. $\frac{9}{25} = 9/25$  | 41. $12\sqrt{2}$          |
| 10. $\frac{9}{55} = 9/55$   | 42. 121                   |
| 11. $\frac{21}{10} \div \frac{6}{5} = \frac{21}{10} \times \frac{5}{6} = \frac{7}{4} = 1\frac{3}{4} = 1\frac{3}{4}$       | 43. 144                   |
| 12. $\frac{7}{6} = 1\frac{1}{6} = 1\frac{1}{6}$   | 44. 169                   |
| 13. $\frac{17}{60} = 17/60$   | 45. 196                   |
| 14. $1\frac{5}{6} = 1\frac{5}{6}$   | 46. 225                   |
| 15. $1\frac{5}{6} = 1\frac{5}{6}$   | 47. 256                   |
| 16. $6\frac{5}{6} = 6\frac{5}{6}$   | 48. 289                   |
| 17. $3\frac{3}{10} = 3\frac{3}{10}$   | 49. 324                   |
| 18. $4\frac{7}{10} = 4\frac{7}{10}$   | 50. 361                   |
| 19. $4\frac{2}{15} = 4\frac{2}{15}$   | 51. 400                   |
| 20. $\frac{1}{20} = 1/20$   | 52. 0.02                  |
| 21. 51  | 53. 10                    |
| 22. 60  | 54. 9                     |
| 23. 48  | 55. $1/6$                 |
| 24. 75  | 56. $10^3 = 1000$         |
| 25. 85  | 57. 49                    |
| 26. 45  | 58. $6^3 = 216$           |
| 27. 88  | 59. $\frac{1}{25} = 1/25$ |
| 28. 140   | 60. 100                   |
| 29. 60  | 61. 361                   |
| 30. 18  | 62. $17/2$                |
| 31. $\begin{array}{r} \frac{4}{5} \\ + \frac{1}{4} \\ \hline \end{array} = \frac{21}{20} = 1\frac{1}{20} = 1\frac{1}{20}$ | 63. $4/3$                 |
| 32. $4\sqrt{3}$   | 64. $7/3$                 |
|   | 65. 4                     |
|   | 66. $4/5$                 |
|   | 67. $4/9$                 |
|   | 68. 5                     |
|   | 69. $5/7$                 |
|   | 70. $5/9$                 |
|   | 71. $5/16$                |
|   | 72. -13                   |
|   | 73. -9                    |

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74. -9

75. -17

76. -15

77. -1

78. -1

79. -3

80. 0

81. 3

82.  $\frac{50}{200} = \frac{25}{100} = 25\%$

83.  $\frac{12}{96} = \frac{1}{8} = 0.125 = 12.5\%$

84. D

$$\frac{8}{20} = 40\%$$

85. B

$$10 + 12 + 3 = 25$$

$$\frac{3}{25} = \frac{12}{100} = 12\%$$

86.  $\frac{0.2 \times 5}{100 \times 5} = \frac{1}{500}$

87.  $45 \div 60 = 0.75 = 75\%$

88.  $\frac{18}{24} = \frac{3}{4} = 75\%$

89.  $\frac{14}{24} = \frac{7}{12} = \frac{700}{12}\% = \frac{175}{3}\% = 58 \frac{1}{3}\%$

90.  $100/250 = 0.4 = 40\%$

91.  $\frac{6}{24} = \frac{1}{4} = 0.25 = 25\%$

92.  $\frac{10}{25} = 40\%$

93. Total = 25

(a)  $\frac{16}{25} = 64\%$  (boys)

(b)  $\frac{9}{25} = 36\%$  (girls)

94.  $120 \div 3 = 40$

95.  $(21 - 12) \div 3 = 3$

$3 + 1 = 4$  (to include both 12 and 21)

Verify: 12, 15, 18, 21

96.  $(120 - 12) \div 3 = 40 - 4 = 36$

$36 + 1 = 37$

97.  $(1200 - 12) \div 4 = 300 - 3 = 297$

$297 + 1 = 298$

98.  $(1000 - 10) \div 5 = 200 - 2 = 198$

$198 - 1 = 197$