Math Power

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School: _____ Grade:_____

250+

Factor Pairs

Factor 24 into as many pairs as possible, then list all the factors in increasing order.

24 = 1×24
= 2×12
= 3×8
= 4×6
1, 2, 3, 4, 6, 8, 12, 24

1. 49 =

1, ___, ___

2. 55 =

1, ___, ___, ___

3. 51 =

1, ___, ___, ___

4. 57 =

1, ___, ___, ___

5. 52 =

1, ___, ___, ___, ___, ___

6. 56 =

1, ___, ___, ___, ___, ___, ___, ___

250+

7. 48 =

1, ___, ___, ___, ___, ___, ___, ___, ___, ___, ___

8. 54 =

1, ___, ___, ___, ___, ___, ___, ___

9. 50 =

1, ___, ___, ___, ___, ___

10. 2 is a prime since there is only way to factor it 1×2. Similarly, 3 is also another prime. Circle all the prime numbers in the following group.

11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30

Common Denominator

Common fractions have common denominator. For example, $\frac{1}{3}$ and $\frac{2}{3}$ are common fractions since both of them have a common denominator. Uncommon fractions have different denominators. For example, $\frac{2}{3}$ and $\frac{3}{4}$ are uncommon fractions since they do not have a common denominator.

However, uncommon fractions can be changed into common fractions through equivalent fractions. Two uncommon fractions become common, for example, $\frac{2}{3} = \frac{8}{\mathbf{12}}$ and $\frac{3}{4} = \frac{9}{\mathbf{12}}$. After being changed into common fractions, two fractions can be compared. As above, $\frac{3}{4}$ is larger than $\frac{2}{3}$.

Question set [**11 - 12**]

Compare uncommon fractions.
Select
A if A is greater
B if B is greater
C if both are equal

11. *A*) $\frac{2}{3} = \frac{}{\mathbf{12}}$

B) $\frac{}{\mathbf{12}} = \frac{3}{4}$

12. *A*) $\frac{1}{2} = -$
B) $- = \frac{2}{5}$

13. *A*) $\frac{3}{5} = -$
B) $\frac{3}{4} = -$

14. *A*) $\frac{4}{6} = -$
B) $\frac{5}{8} = -$

15. *A*) $\frac{2}{5} = -$
B) $\frac{3}{7} = -$

16. *A*) $\frac{4}{5} = -$
B) $\frac{2}{3} = -$

17. *A*) $\frac{3}{12} = -$
B) $\frac{5}{8} = -$

18. *A*) $\frac{6}{15} = -$
B) $\frac{2}{3} = -$

19. *A*) $\frac{3}{12} = -$
B) $\frac{4}{15} = -$

20. *A*) $\frac{1}{9} = -$
B) $\frac{1}{12} = -$

Greatest Common Factor
Find the greatest common factor for each pair of numbers.

Example: Find GCF(24, 30).

Step 1: Write both side by side

	24	,	30

Step 2: Find a common factor: 2
Divide each by 2 to get 6 and 9.

2	24	,	30
	12	,	15

Step 3:Find a common factor: 3
Divide each by 3 to get 2 and 3.

2	24	,	30
3	12	,	15
	4		5

Step 4: $2\times3 =$ **6** ⇐ GCF

21. GCF(18, 72) =

_____ , _____

22. GCF(16, 24) =

_____ , _____

23. GCF(120, 160) =

_____ , _____

24. GCF(10, 25) =

_____ , _____

25. GCF(48, 60) =

26. GCF(300, 360) =

27. GCF(27, 63) =

28. GCF(200, 350) =

29. GCF(36, 42) =

30. GCF(60, 135) =

Multiply Decimals
Shortcuts:
Step 1: Multiply the non-zero (shaded) digits.
Step 2: Add the number of (underlined) zeros.
Step 3: Combine Step 1 and 2.

10×10 = 100	⇒	**20×30 = 600**
100×0.1 = 10	⇒	**300×0.2 = 60**
10×0.01 = 0.1	⇒	**20×0.03 = 0.6**
0.1×0.1 = 0.01	⇒	**0.3×0.4 = 0.12**
0.01×0.1 = 0.001	⇒	**0.02×0.5 = 0.01**

31. 9×3×3 =

32. 0.09×30×30 =

33. 7×9×2 =

34. 700×90×0.2 =

35. 5×5×9 =

36. 500×0.5×90 =

37. 4×4×12 =

38. 400×0.4×120 =

39. 9×5×7 =

40. 900×0.05×70 =

Review: Power Operation

41. $(2/5)^2$ =

42. $(2/5)^3$ =

43. (——)^4 = 16/625

44. $(1/2)^3$ =

45. $(1/2)^{\square}$ = 1/16

46. $(1/2)^5$ =

47. $(1/2)^{10}$ =

48. $(1/4)^3$ =

49. (——)^3 = 8/27

50. $(1/4)^{\square}$ = 1/64

Review 240

51. Divide: 12000 ÷ 500 =

52. How many ounces are in $\frac{3}{4}$ pound?
(1 lb = 16 oz)

53. $\frac{1}{5}\times\frac{2}{6}\times\frac{3}{4}$ =
(Must simplify your answer to the lowest terms.)

54. $\square \div 9 = 12$

55. 10 dollars = _____ quarters

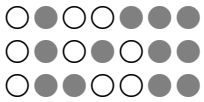
56. $2 \times 10 \times 100 \times 5000 =$

57. $25 \times 205 \times 2005 \div (205 \times 25) =$

58. 50 nickels = _____ quarters.

59. $8 \times \square = 640$

60. What fraction of these circles is black?



61. A mechanical pencil cost $1.75. How many quarters will Rachel need to buy three mechanical pencils?

62. Alyson bought a package of 5 pencils and 2 erasers for $2.30. How much change will she get back if she bought 3 packages with a $10 bill?

63. Each gumball costs 15¢. How many gumballs can Owen buy for $3.00?

64. Henry has a busy schedule. He could only read 12 pages per day of a 90-page novel. If he started on Saturday, on what day of the week will he finish reading the novel?
A) Saturday
B) Sunday
C) Monday
D) Tuesday

65. If Francis practiced his high jump for 2 hours a day, 4 days per week, how many hours in total did he practice in 10 weeks?

GT Math Stretch

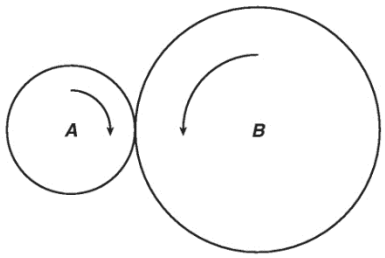
66. The chart below describes the speed of four desktop printers. Which printer is the fastest?

Printer	Description
A) Roboprint	Prints 2 pages per second
B) Voltronn	Prints 1 page every 2 seconds
C) Vantek Plus	Prints 160 pages in 2 minutes
D) DLS Pro	Prints 100 pages per minute

67. Jesse used 10 gallons of gasoline to drive 160 miles. How much gasoline will he need to travel 256 miles?

68. How many ways are there to write six 1's and three plus signs in a row to total 24?

69. When wheel B turns 2 times, wheel A turns 5 times. When wheel A turns 40 times, how many times does wheel B turn?



70. A city has a budget of $6,000,000. It marks 10% for public welfare. What is the amount available for public welfare?

71. $\frac{3}{5}$ of Mrs. Robins class are boys. If she has 16 girls in her class, how many boys are there?

72. Michael spent $30 of his monthly allowance, and he had $\frac{2}{5}$ of his money left. How much did he receive for his allowance each month?

73. In the sequence shown, each figure after the first is formed by adding 4 squares to the previous figure. How many squares form Figure 100?

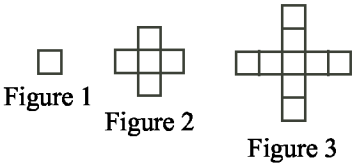


Figure 1 Figure 2 Figure 3

74. Carl has \$6 more than Dave. They put together their money to buy a video game, which costs \$30. How much money does each contribute?

Question set [**75 - 76**]

Frog Leapy practices leaping for the annual contest. He can make 15 leaps in a minute.

75. How many leaps can he make in 40 sec?
    (A) 15 leaps
    (B) 10 leaps
    (C) 8 leaps
    (D) 6 leaps

76. How many leaps can he make in 72 sec?
    (A) 10 leaps
    (B) 16 leaps
    (C) 17 leaps
    (D) 18 leaps

77. Eden has 12 jumbo marbles to give his cousins Frank and Gerald. Since Frank is older than Gerald, Eden decides to let Frank have two times as many marbles as Gerald. How should these marbles be divided?

78. 75 sec = _____ min

Question set [**79 - 80**]

Stock sense.

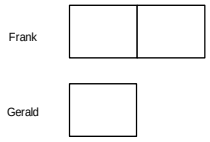
79. A certain stock begins the week trading at \$85 per share. If the net gain for the next four days is $\$7\frac{1}{2}$, by how much should the price of the stock increase during Friday so that the total gain for the stock during the entire five days is 20 percent?

80. Before the market opens on Monday, a stock is priced at \$25. If its price decreases \$5 on Monday, increases 10% on Tuesday, and then decreases 20% on Wednesday, what is the final price of the stock on Wednesday?

Answer Key

1. {1, 7, 49 }
2. {1, 5, 11, 55 }
3. {1, 3, 17, 51 }
4. {1, 3, 19, 57 }
5. {1, 2, 4, 13, 26, 52 }
6. {1, 2, 4, 7, 8, 14, 28, 56 }
7. {1, 2, 3, 4, 6, 8, 12, 16, 24, 48 }
8. {1, 2, 3, 6, 9, 18, 27, 54 }
9. {1, 2, 5, 10, 25, 50 }
10. { 11, 13, 17, 19, 23, 29 }
11. B
$\frac{2}{3} = \frac{8}{\mathbf{12}} < \frac{9}{\mathbf{12}} = \frac{3}{4}$
12. A
$\frac{1}{2} = \frac{5}{10} > \frac{4}{10} = \frac{2}{5}$
13. B
$$\frac{3}{5} = \frac{12}{20} < \frac{15}{20} = \frac{3}{4}$$
14. A
15. B
16. A
17. B
18. B
19. B
$\frac{15}{60} < \frac{16}{60}$
14. A
$$\frac{4}{6} = \frac{16}{24} > \frac{15}{24} = \frac{5}{8}$$
15. B
16. A
17. B
18. B
19. B
$\frac{15}{60} < \frac{16}{60}$
15. B
$$\frac{2}{5} = \frac{14}{35} < \frac{15}{35} = \frac{3}{7}$$
16. A
17. B
18. B
19. B
$\frac{15}{60} < \frac{16}{60}$
16. A
$$\frac{4}{5} = \frac{12}{15} > \frac{10}{15} = \frac{2}{3}$$
17. B
18. B
19. B
$\frac{15}{60} < \frac{16}{60}$
17. B
$$\frac{3}{12} = \frac{6}{24} < \frac{15}{24} = \frac{5}{8}$$
18. B
19. B
$\frac{15}{60} < \frac{16}{60}$
18. B
$$\frac{6}{15} < \frac{10}{15} = \frac{2}{3}$$
19. B
$\frac{15}{60} < \frac{16}{60}$
19. B
$\frac{15}{60} < \frac{16}{60}$
20. A
$$\frac{4}{36} > \frac{3}{36}$$
21. 18
21. 18
22. 8
23. 40
24. 5
25. 12
26. 60
27. 9
28. 50
29. 6
30. 15
31. 81
32. 81
33. 126
34. 12600
35. 225
36. 22500
37. 192
38. 19200
39. 315
40. 3150
41. 4/25
42. 8/125

43. 2/5
44. 1/8
45. 4
46. 1/32
47. 1/1024
48. 1/64
49. 2/3
50. 3
51. 24
52. $\frac{3}{4}\times16 = 12$ oz
53. $\frac{1}{20} = 1/20$
54. $\square = 108$
55. 40
56. 10,000,000
57. 2005
58. 10 quarters
59. $\square = 80$
60. $\frac{4}{7} = 4/7$
61. 7 quarters = \$1.75
    $7\times3 =$ 21
62. $10 - 2.3\times3 = 10 - 6.9 = \$3.10$
63. $300\div15 =$ 20
64. B
    $90\div 12 = 7R6$
    $7 + 1 = 8$
    It should be Sunday.
65. $2\times4\times10 = 80$
66. A
    Roboprint (fastest) prints 120 pages
    Voltronn prints 30 pages
    Vantek Plus prints 80 pages
    DLS Pro prints 100 pages
67. $160\div10 = 16$
    $256\div16 = 16$ gal
68. 1+11+11+1=24
    1+1+11+11=24
    1+11+1+11=24
    11+11+1+1=24
    11+1+11+1=24
    11+1+1+11=24
    Ans = 6 ways
69. $40\div5 = 8$
    $8\times2 = 16$
70. $6{,}000{,}000\times10\% = 6{,}000{,}000\times0.1 = \$600{,}000$
71. $16\times\frac{3}{2} = 24$
72. $30\div\frac{3}{5} = 50$
73. $99\times4 + 1 = 397$
74. (a) $(30+6)\div2 = \$18.00$ (Carl)
    (b) $(30-6)\div2 = \$12.00$ (Dave)
75. B
    $\frac{40}{60}\times15$
    $= \frac{2}{3}\times15$
    = 10 leaps
76. D
    $1\frac{12}{60}\times15$
    $= 1\frac{1}{5}\times15$
    = 15 + 3
    = 18 leaps
77. Use the diagram below. There are two boxes for Frank and one for Gerald. Therefore, 3 boxes account for 12 marbles, each one representing 4 marbles.
    Ans = 8 marbles for Frank & 4 marbles for Gerald



78. 75 sec = 1 min 15 sec = $1\frac{1}{4}$ = 1 1/4 min
79. $85\times\frac{1}{5} = 17$
    $17 - 7\frac{1}{2} = \$9.50$
80. price ending Monday: 25 - 5 = 20
    price ending Tuesday:
    $20 \times 10\% = 20\times0.1 = 2$
    $20 + 2 = 22$
    price ending Wednesday:
    $22\times20\% = 22\times0.2 = 4.40$
    $22 - 4.40 = 17.60$