Math Power

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School: _____ Grade:_____

Crunching Numbers

1. $\frac{3}{4}\times(-12)$ =

2. $-2\frac{1}{2}\div-1\frac{2}{3}\times4\frac{1}{6}\div\frac{-1}{12}=$

3. -.04 ÷ -1000 =

4. .2 × .2 =

5. .9 × -.2 =

6. 0.5 is what part of 0.75?

7. $10 \times 7 + 5^2 - 2 =$

8. 15% of 80 =

9. 2.2 - 0.9 × 4.3 + 2.9 =

10. 200 × 300 =

11. 25% of what number is 9?

12. 3.1 - 0.2 × 9.7 + 7.7 =

13. 321 – 123

14. 40 is what part of 30?

15. $5 - 3\frac{4}{5}$ =

16. 54 × 3 - 43 × 3 =

17. $63 \div 700 =$

18. $7^2 + 8^3 - (97 - 58 + 8 \times 2) \times 2 =$

19. $800 \div .002 =$

20. $90 \times 20 =$

21. Find all the factors of 100.

22. Find the value of Δ below:
$\frac{12}{24} = \frac{19}{\Delta}$

Numbers

23. What is $41\frac{2}{3}$ % of 300?

24. What number is 10% of 920?

25. What percent of 650 is 130?

26. 28 is 80% of what number?

27. 120 is what percent of 150?

28. 40% of 25 is what number?

29. What percent of 80 is 100

30. 60 is 75% of what number?

31. What number is 125% of 160?

32. 231 is $91\frac{2}{3}$ % of what number?

GT Integrated Review

33. Solve the following linear equation :
$-3x + 2 = 20$

34. $4^5 \div 2^7 = 2^{\square}$

35. $1\frac{2}{3} \times 1\frac{2}{5} \times 1\frac{2}{7} \times 1\frac{2}{9} \times 1\frac{2}{11} =$
(Leave your answer in the reduced fraction: $A\frac{B}{C}$)

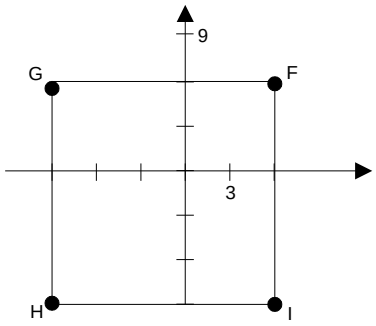
36. The average of Dan's and Anna's age is 18. If Dan is twice as old as Anna, what is the difference between their ages?

37. $9^4 \times 3^3 = 3^{\square}$
$\square$ = _____

38. 20% of 20 =

Question set [**39 - 42**]

Find the coordinates for each point.



39. H

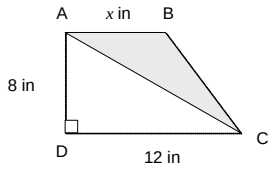
40. I

41. F

42. G

43. .35 ÷ 5000 =

44. The area of ΔADC is twice that of ΔABC. What is the length of AB?



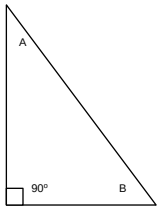
45. If 5 tickets cost $63.75, how does each ticket cost?

46. A memory card cost $20 last year. If the price increased by 50% this year, how much do a <u>dozen</u> memory cards cost this year?

47. 50.7 + 17.5 - 52.1 - 87 =

48. A solar calculator cost $60 last year. If there is a 5% increase on the price this year, what is the new price?

49. In the right triangle, ∠B is two times of ∠A. What is the measure of angle B?



50. Cal signed and sold 21 copies of his book. If the copies were packed in boxes of 6, how many boxes did Cal open?

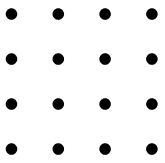
51. 3.1 × .03 =

52. Change 2.03 into percent.

GT Math Contest

53. Emma had a $1.00 bill. She exchanged it with her brother Sam for seven coins. What were these coins?

54. How many squares can you find by joining the dots?



55. The reciprocal of the smallest prime is
A) 0
B) $\frac{1}{2}$
C) 1
D) 2

56. $\frac{11+22}{22+44} = \frac{11}{22} +$ ____

57. $2^4 + 4^2 + 2^4 + 4^2 = 8^{\square}$

58. Alex had three boxes of marbles. In the first box, 30% of the marbles were blue. There were twice as many marbles in the second box as in the first box, and 25% were blue in the second box. There were three times as many marbles in the third box as in the second box, and 15% were blue in the third box. The blue marbles in the third box are what percent of the marble collection?

59. If you rolled a pair of dice whose faces were numbered 1 through 6, what is the probability that you would roll a sum which is a composite number?

60. On the pirate ship there are 24 swords. Each pirate has 2 swords.
a) If half the pirates lost a sword in battle and a quarter of the pirates each gained a new sword, how many swords would there now be on the pirate ship?

b) If a third of the swords were then lost how many would there be left?

61. When Beth goes from her house to Whistler, her car uses on average 13 liters of gas every 100 km. On the way back from Whistler, her car averages 11 liters of gas for every 100 km. The entire round trip uses a total of 36 liters of gas. What is the distance in km between Beth's house and Whistler?

62. Find the smallest 4-digit perfect square.

63. In which of the following divisions is the remainder equal to 2?
    A) 257 ÷ 5
    B) 228 ÷ 6
    C) 195 ÷ 3
    D) 176 ÷ 4

64. You are on a game show where there are five multiple choice questions numbered from 1 to 5. Each question has five possible answers labeled A, B, C, D, and E. If you know the answer to one of the questions but just guess the answers at random for the other four questions, what chance do you have to get 5 of them all correct?

65. What is the average number of days per month for the year 2000?

66. What is the area (in cm^2) of a square whose perimeter is 6 cm?

67. Take any 2-digit number. Reverse the digits to make another 2-digit number. Add the two numbers. What factor do the answers have in common?
    A) 3
    B) 5
    C) 11
    D) 17

68. In her first year a breeder's dogs produce 2 puppies. In her second year her dogs produce three-times as many puppies. In her third year her dogs produce 5 times as many puppies as the first year. How many puppies will the breeder have produced in her first 3 years?

69. Bill is attending pie-eating contest. Bill begins by eating a certain fraction of the pie. He then eats the fraction of the pie that he first ate along with a half of the pie. Finally, he eats the fraction of the pie that he first ate along with a eighth of the pie and finishes the whole pie. What fraction of the pie did Bill eat to begin with?

70. $111 + 222 + 333 + 444 = 222 \times \square$?

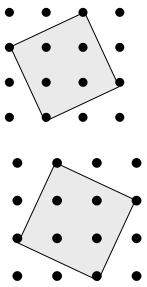
71. On Monday, Sam and Sylvia shared some lollipops that their Mother had given them. Sam got 2 lollipops. Sylvia got 4 lollipops. If their Mother gave them each the same number of lollipops every day up to (and including) Friday, how many lollipops did they each get?

72. You have five playing cards: an ace, a king, a queen, a jack, and a ten. In how many different outcomes can you put the cards if the king and the queen are always next to each other?

Answer Key

1. -9
2. -75
3. .00004
4. .04
5. -.18
6. $0.5 \div 0.75 = \frac{2}{3}$, and indeed $\frac{2}{3} \times 0.75 = 0.5$.
7. 93
8. 12
   $15\% \times 80 = 0.15 \times 80 = 12$
9. 1.23
10. 60,000
11. 36 ($25\% \times \square = 9 \Rightarrow \square = 36$)
12. 8.86
13. 198
14. $40/30 = \frac{4}{3} = 1\frac{1}{3}$
15. $1\frac{1}{5}$
16. 33
17. .09
18. 451
19. 400000
20. 1,800
21. {1, 2, 4, 5, 10, 20, 25, 50, 100}.
22. $\Delta = 38$
23. 125
24. 92
25. 20%
26. 35
27. 80%
28. 10
29. 125%
30. 80
31. 200
32. $231 = 91\frac{2}{3}\% \times \square$
    $\square = \frac{23100 \times 3}{275} = \frac{23100 \times 3 \times 4}{275 \times 4} = \frac{\cancel{23100}^{21} \times 3 \times 4}{\cancel{1100}} = \underline{252}$
33. $x = -6$
34. $4^5 \div 2^7 = 2^{10} \div 2^7 = 2^{\boxed{3}}$
35. $4\frac{1}{3}$
36. The sum is 36.
    Dan is 24 and Anna is 12.
    The difference is 12.
37. $9^4 \times 3^3 = 3^{\boxed{11}}$
38. 4
39. (-9, -9)
40. (6, -9)
41. (6, 6)
42. (-9, 6)
43. .00007
44. $\frac{1}{2}(12) =$ 6 in
45. $63.75 \div 5 = \$12.75$
46. $20 \times 1.5 = 30$
    $12 \times 30 = \$360$
47. -70.9
48. $60 \times 5\% = 60 \times 0.05 = 3$
    $60 + 3 =$ \$63.00
49. 60°
50. $3 \times 6 = 18$ (not enough)
    $4 \times 6 = 24$
    4 boxes are needed.
51. $3.1 \times .03 = .093$
52. 203%
53. 5D2Q, or
    3N1D3Q
54. $9 + 4 + 1 + 4 + 2 = 20$ squares

□	1 by 1	3×3 = 9
□	2 by 2	2×2 = 4
□	3 by 3	1×1 = 1
◇	one dot enclosed	2×2 = 4
◇	4 dots enclosed (shown below)	2



55. B
56. 0
57. $2^4 = 4^2 = 16$
    $4 \times 16 = 64 = 2^6 = 8^2$
58. T1 = 10, B1 = 3
    T2 = 20, B2 = 5

T3 = 60, B3 = 9
Total = 10 + 20 + 60 = 90
B3/Total = 9/90 = 0.1 = 10%

59. The sums of rolling two dice are listed below. Boldfaced are composite numbers.

	1	2	3	4	5	6
1	2	3	**4**	5	**6**	7
2	3	**4**	5	**6**	7	**8**
3	**4**	5	**6**	7	**8**	**9**
4	5	**6**	7	**8**	**9**	**10**
5	**6**	7	**8**	**9**	**10**	11
6	7	**8**	**9**	**10**	11	**12**

The probability of getting a composite number is $(3+5+5+4+3+1)/36 = 21/36 = \frac{7}{12}$.

60. (a)
24÷2 = 12 (pirates)
12÷2 = 6
12÷4 = 3
24 - 6 + 3 = 21 (swords)
b)
21÷3 = 7
21 - 7 = 14 (swords)

61. 13+ 11 = 24
36÷24 = 1.5
1.5×100 = 150 km
Double-check:
1.5×(13 + 11) = 36 liters

62. $11^2 = 121$
$31^2 = 961$
32^2 = 1024

63. A

64. $(\frac{1}{5})^4 = \frac{1}{625}$

65. 2000 is a leap year, so it has 366 days.
366÷12 = 30.5

66. 6÷4 = 1.5
1.5^2 = 2.25 or $2\frac{1}{4}$ cm^2

67. C
They are all multiples of 11. See the following examples.
13 + 31 = 44
26 + 62 = 88
47 + 74 = 121
54 + 45 = 99
68 + 86 = 154

68. 2 + 3(2) + 5(2) = 18

69. $1 - \frac{1}{2} - \frac{1}{8} = \frac{3}{8}$
$\frac{3}{8} \div 3 = \frac{1}{8}$

70. C
1 + 2 + 3 + 4 = 10
10 = 2×5

71. 2×5 = 10 (Sam)
4×5 = 20 (Sylvia)

72. A, KQ, J, T
A, QK, J, T
4×3×2×1×2 = 48 outcomes