



# Speed Math 7th/8th

1	Find the sum: $1 + 997 + 2 + 998 + 3 + 999$
2	The history class began in chapter 6 and covered material through chapter 14. How many chapters were covered?
3	Evaluate the quotient: $8 \div \frac{4}{7}$
4	Define the new operator # such that $a\#b = a + \frac{b}{a}$ . What is $2\#4$ ?
5	Fermat can solve 3 math problems in 30 minutes. At this rate, how many math problems can he solve in 2 hours?
6	Solve for $x$ if $3 - 2x = 4x - 15$
7	A cylindrical bucket of paint has a base area of 14 units and height of 6 units. If this bucket is $\frac{2}{3}$ filled with paint, what is the volume of paint in the bucket?
8	A fair coin is flipped and a standard six-sided die is thrown. What is the probability of both flipping heads and rolling an even number?
9	Find the sum: $\frac{2}{7} + \frac{3}{10}$ .
10	Each plant of the genus mathematicus grows 2 leaves before it dies. If you plant 13 plants of the genus mathematicus, how many leaves will they grow in all?
11	If $x = 5$ and $y = 3$ , compute the sum: $2x + 3y$ .
12	How many black squares are there on an 8x8 checkerboard?
13	What is the median of the following data set: $\{1, 6, 2, 8, 4, 8, 3, 3, 4, 4, 4, 4, 4, 9, 9\}$ ?
14	Evaluate: $1 + 2 + 3 + \dots + 10$ .
15	What is the sum of the first 5 perfect squares? (Starting with 1.)
16	Judith flips a fair coin and spins a spinner with four equal sections labeled $A, B, C$ and $D$ . What is the probability that both the coin lands on heads and the spinner <b>doesn't</b> land on section $C$ ?
17	In how many ways can I choose two different flavors of ice cream if there are four flavors available? (Assume I don't care in which order they are chosen.)
18	A park contains only humans and dogs. If there are 11 heads and 36 legs, how many dogs are there in this park?
19	What is the length of the third side of a right triangle with legs of length 5 and 12?
20	How many distinct ways are there to arrange the letters in the word "SHELLS"?

21	What is the side length of a cube with volume 343?
22	A bacteria culture doubles in population every half hour. If the culture originally contained 2 bacteria and there are 32 bacteria at 4:30pm, at what time were there 16 bacteria?
23	What is the ones digit of the number $2^9$ ?
24	Isabelle opens a book to a random location and adds the two page numbers. She gets 73. What is the smaller of the page numbers?
25	What is the midpoint of a segment with endpoints $(-4, 16)$ and $(8, -2)$ ?
26	What is the probability of rolling a prime number on a standard six-sided die?
27	How many letters in total are in the following words? <i>one, two, three, ... , nine.</i>
28	If 3 apples are worth 5 bananas, and 10 bananas are worth 3 oranges, how many apples are worth 6 oranges?
29	I use 60 chocolate chips to make 12 cookies. If all the chips stay whole and I find 7 chocolate chips in one cookie, how many more chocolate chips than the mean are there in that cookie?
30	I can walk home from the park in 10 minutes. If the park is 1 mile from my house, what is my average speed in miles per hour?
31	Michael rolls a circular wheel with area $36\pi$ along a path $72\pi$ long. How many rotations does it make?
32	License plates in Newporlandia are in the form "XXO" where the X's are a single digit and the O's represents a capital letter of the English alphabet. How many different license plates are possible?
33	What is the slope of the line: $-5y + 4x = -3$ ?
34	What is the prime factorization of 420 ?
35	What is the angle formed by the hands of a clock at precisely 6:30?
36	Expand the product: $(\sqrt{5} - 2)(3\sqrt{5} + 2)$
37	John drives from point A to point B at 30 miles per hour. John then drives back from point B to point A at 60 miles per hour. What was his average speed for the entire trip in miles per hour?
38	Convert $\frac{3\pi}{20}$ radians to degrees.
39	What is the area of the triangle formed by the coordinate axes and the line $y + 2x = 6$ ?
40	Evaluate the product: $37 \cdot 57$
41	Evaluate: $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \dots + \frac{1}{128}$ .
42	Evaluate: $32\left(-\frac{2}{5}\right)$

43	Archimedes places a silver crown in a rectangular tub of water with base dimensions 4 cm by 10 cm. The water level rises half a centimeter. What is the volume of the crown, in cubic centimeters?
44	The probability that it rains in Seattle on any given day is $\frac{1}{3}$ . What is the probability it will rain on each of the next three days?
45	Which of the following fractions is the largest? $\frac{6}{25}, \frac{7}{29}, \frac{8}{33}$
46	What is the sum of the numbers: $2 + 5 + 8 + \dots + 44$ ?
47	Simplify the expression so that there is a single fraction: $\frac{2}{\frac{1}{x} + \frac{1}{y}}$
48	Evaluate: $\sin 120^\circ$
49	Sasha received the following points on 5 tests: 50, 50, 20, 0, and 0. If he wants to bring his average score to exactly 100, what integer score must he receive on his next test?
50	Solve for all possible values of $x$ : $x^2 - x - 6 = 0$
51	What is the maximum number of regions into which 5 lines can divide a plane?
52	The surface area of a cube is numerically 4 times its volume. What is the side length of this cube?
53	What is the next letter in the sequence: O, T, T, F, F, S, S, E, N, __ ?
54	How many positive integer factors does 36 have?
55	What is the sum of the positive integer factors of 36?
56	4 liters of a 60% concentrated solution are diluted with 6 liters of water. What is the new concentration of the solution?
57	$X$ is inversely proportional to the square of $Y$ . Given that $Y = 3$ when $X = 4$ , what is $X$ when $Y = 2$ ?
58	Evaluate $\frac{1}{\sqrt{3}}$ to the nearest hundredth.
59	Evaluate: $3^{27} \pmod{7}$ (Your answer should be an integer between 0 and 6.)
60	Define solid $A$ to be the shape formed when the curve $f(x) = x^3 - 2x^2 + 3$ from $x = 1$ to $x = 17$ is rotated around the $x$ - axis. $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = e$ . Suppose solid $A$ is filling at a rate of $\frac{26 \text{ icecreams}}{1 \text{ hour}}$ ; it would take an incredibly long time to fill solid $A$ with icecreams. $\cot^{-1}[\iiint_a^b x^3 + 2x^2 + 3 \, dx]$ . What is the sum 1 plus the square root of 1?