



## Speed Math 7th/8th

1	Evaluate: $729 \div 27$
2	If $2x + 4 = 3x - 2$ , what is the value of $x$ ?
3	What is the slope of the equation $3x + 2y = 10$ ?
4	If $\frac{x}{2} = 2x - 3$ , what is the value of $x$ ?
5	How many odd integers are between, but not equal to 7 and 93?
6	What are the coordinates of the y-intercept of the equation $2x + 5y = 25$ ?
7	21 is 35% of what number?
8	If the area of a $\frac{1}{7}$ scale drawing of a tabletop is 5 square inches, what is the actual area of the tabletop, in square inches?
9	What is the distance between the y-intercepts of the line with the equation $y = 2x + 3$ and the line with the equation $2y - 6x = 4$ ?
10	If $ x - 7  = 1$ , what is the product of all possible values of $x$ ?
11	If $\frac{3x+7}{2} = 23$ , what is the value of $x$ ?
12	If a stock's value dropped by 25% last week, by what percent will it have to increase this week to regain its original value? <i>(Round your answer to the nearest whole percent.)</i>
13	If a book's price starts at \$10, is increased by $x\%$ to \$12.50, and then is decreased by $y\%$ back to \$10, what is the value of $x - y$ ?
14	$(x^2)^3 = \frac{1}{64}$ , what is the value of $x$ ? <i>(Express your answer as a common fraction.)</i>
15	What is the sum of all values of $x$ for which $(x + 3)^2 = 169$ ?
16	If $4x + \frac{x}{2} + 2 = 20$ , what is the value of $x$ ?
17	When $-2(x - 2(x - 2))$ is written in the form $ax + b$ , what is the value of $a + b$ ?
18	Which is greater, $2^5$ or $5^2$ ?
19	Express $\sqrt{54}$ in simplest radical form.
20	What is the length, in inches, of the hypotenuse of a right triangle with leg lengths 12 inches and 5 inches?
21	What is the coefficient of $x$ in the expansion of $(x + 3)(x - 2)$ ?
22	Find the product of all possible values of $x$ if $x^2 - 6x + 5 = 0$ .
23	If $5x + 2y = 30$ and $2x + 5y = 33$ , what is the value of $x + y$ ?

24	What is the area of a right triangle with acute angles measuring $30^\circ$ and $60^\circ$ and a hypotenuse measuring 8 inches? <i>(Express your answer in simplest radical form.)</i>
25	What is the equation, in slope-intercept form, of the line that is parallel to $y = 3x + 4$ and passes through the point $(5, 2)$ ?
26	What is the area, in square inches, of a right triangle with a hypotenuse measuring 15 inches and one leg measuring 12 inches?
27	Find the y-coordinate of the y-intercept of the line that is perpendicular to $y = \frac{1}{8}x + 7$ and passes through the point $(3, 9)$ .
28	If the price of a stock is \$10 on January 1 <sup>st</sup> , 2007, and each January 1 <sup>st</sup> its price is 10% higher than the previous January 1 <sup>st</sup> , what is its price on January 1 <sup>st</sup> , 2009?
29	What is the length, in feet, of the longest straight stick that can fit into a right rectangular prism measuring 3 feet by 4 feet by 12 feet?
30	What is the measure, in degrees, of any exterior angle of a regular decagon?
31	If the positive difference between two consecutive squares is 35, what is the greater of the two squares?
32	What is the area, in square inches, of the largest triangle that can be inscribed in a semicircle with radius 5 inches?
33	What is the positive difference between the median and mode of these data? $\{0, 2, 2, 19, 21, 28, 39, 41\}$
34	If a right triangle has sides of length 3 feet, 4 feet, and 5 feet, and another right triangle not congruent to the first has two sides of length 3 feet and 4 feet, what is the length of the third side of this triangle, in feet? <i>(Express your answer in simplest radical form.)</i>
35	What are the coordinates of the intersection of the lines $3x + 2y = 9$ and $2x + 3y = 6$ ?
36	Find the coordinates of the center of the figure with the following equation: $x^2 + 6x + y^2 - 14y = 23$ .
37	If a total of 78 handshakes occurred at a party, and each person shook hands once with each of the other people, how many people were at the party?
38	What is the length of a diagonal of a rectangle with area 60 meters <sup>2</sup> and side lengths $x$ meters and $x + 7$ meters?
39	Find the minimum value of the parabola described by the equation $y = x^2 - 6x + 8$
40	What is the radius of the circle described by the equation $x^2 - 14x + y^2 + 22y = -26$ ?
41	What are the coordinates of the midpoint of the line segment with endpoints $(2, 7)$ and $(10, 3)$ ?
42	What is the distance between the points $(3, 5)$ and $(9, 13)$ ?
43	Find the distance between the points $(7, 1)$ and $(3, 9)$ <i>(Express your answer in simplest radical form.)</i>
44	If $f(ab) = f(a) + f(b)$ for any values of $a$ and $b$ , and $f(3) = 20$ , what is the value of $f(9)$ ?

45	Given that $\sin \theta = \frac{5}{7}$ and $\cos \theta = \frac{4}{7}$ , what is the value of $\tan \theta$ ? (Express your answer as a common fraction.)
46	Given that $x^2 + 10x - 3 + 4k$ is a perfect square for any integer $x$ , what is the value of $k$ ?
47	If there are 5 red marbles, 8 blue marbles, and 6 green marbles in a bag, what is the probability of first drawing one blue marble and then one green marble without replacement? (Express your answer as a common fraction.)
48	What is the period, in radians, of the function $f(x) = 50 \sin\left(\frac{\pi}{2}x\right) + 36$ ?
49	If a blade of a fan rotates 30 times in one minute, and the radius of the fan is 2 feet, what is the linear velocity of a point on the tip of the blade? (Express your answer in terms of $\pi$ in feet per minute.)
50	Convert $120^\circ$ to radian measure. (Express your answer as a common fraction in terms of $\pi$ .)

**Thought you were almost done? Not so fast! Try tackling these! (evil laugh)**

51	Given that a class's test scores are normally distributed with a mean of 56 and a standard deviation of 8, what is the probability that any given student scored more than 64 points? (Express your answer as a percent rounded to the nearest whole number.)
52	What is the sum of all of the integer factors of 256?
53	If $6_x \times 9_x = 42_x$ , what is the value of $x$ ?
54	What is the sum of the terms in the infinite geometric series with first term 36 and second term 12?
55	If $a$ is the sum of all of the even integers from 2 to 500, inclusive, and $b$ is the sum of all of the integers from 1 to 250, inclusive, what is the value of $\frac{a}{b}$ ?
56	Evaluate $(\log_2 7)(\log_7 32)$ .
57	Express $1101_2 + 1010_2$ in base 2.
58	What is the sum of the first 37 positive integers?
59	What is the sum of the reciprocals of all of the positive integer factors of 15? (Express your answer as a common fraction.)
60	What is the last digit in the sum of the factorials of the first 100 positive integers?