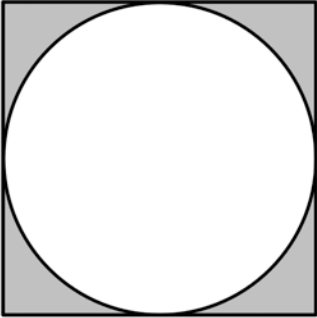
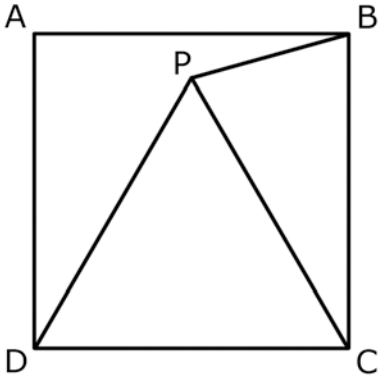
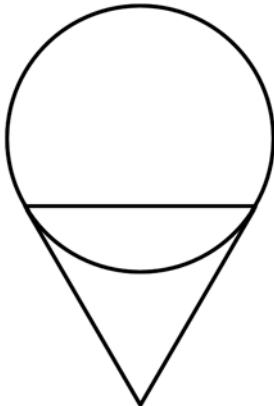




# Individual Test 7th/8th

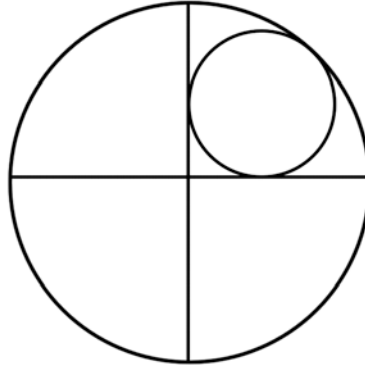
1	What is 3688 rounded to the nearest hundred?
2	Find the product: $3 \cdot 5 \cdot 7$
3	Find the quotient: $156 \div 3$
4	Find the median of the set: $\{1, 2, 20, 3, 4, 5, 6, 7, 8\}$
5	What is the $y$ -intercept of the line $y = 5x + 3$ ? Give your answer as an ordered pair $(x, y)$ .
6	Find the sum: $100 + 200 + 300 + 400 + 500$
7	A rectangle has an area of 12 units and a perimeter of 16 units. What is the length of the longer side of the rectangle?
8	I flip a fair coin twice. What is the expected number of heads?
9	Evaluate: $1.1^2$ (Express your answer as a decimal.)
10	Solve the equation for $x$ : $15x + 3 = 83 + 5x$
11	What is the 10th term in the sequence: 1, 4, 7, 10, ...
12	The sum of three consecutive integers is 33. What is the smallest of the three integers?
13	An arithmetic sequence has 2nd term 14 and 12th term 34. What is the common difference?
14	A triangle has a base of 6 units and an area of 24 units. What is the height of this triangle?
15	Find $\left(\frac{x}{z}\right)$ , given $\left(\frac{x}{y}\right) = \left(\frac{3}{7}\right)$ and $\left(\frac{y}{z}\right) = \left(\frac{3}{7}\right)$ .
16	The probability of randomly drawing a blue marble out of a bag containing blue and red marbles is $\frac{1}{2}$ . If 5 blue marbles are added to the bag, the probability of drawing a blue marble becomes $\frac{2}{3}$ . How many blue marbles were in the bag originally?
17	How many ways are there to rearrange the letters in the word "pair" including the original arrangement?
18	How many positive integer factors does the number 24 have?
19	The sum of two numbers is 39 and their difference is 7. What is the larger of the two numbers?
20	Solve the following inequality for $x$ : $\frac{24x}{3} > \frac{472}{2}$ .
21	If 1 apple is worth 2 bananas, 1 banana is worth 2 mangos, and 1 mango is worth 2 dollars, how many apples can I buy for 32 dollars?

22	<p>A circle is inscribed in a square. If the square has a side length of 10 units, what is the area of the shaded region?</p> 
23	<p><math>ABCD</math> is a square. Point <math>P</math> is inside square <math>ABCD</math> such that triangle <math>DPC</math> is equilateral. What is the smaller measurement of angle <math>BPC</math> in degrees?</p> 
24	<p>Let <math>A1B</math> be a 3 digit integer where <math>A</math> and <math>B</math> are digits. Given that <math>A1B</math> is evenly divisible by 45, list all possible ordered pairs <math>(A, B)</math>.</p>
25	<p>The sequence of numbers: 8, 19, 36, 59 can be obtained by respectively plugging in <math>x = 1, 2, 3, 4</math> into the equation <math>(x) = ax^2 + bx + c</math>. What is the value of <math>a</math>?</p>
26	<p>Find the product of all possible values of <math>x</math>: <math>6x^2 + 4x - 2 = 0</math></p>
27	<p>A non-degenerate triangle has side lengths of 14, 19, and <math>x</math>. If <math>x</math> must be an integer, how many possible values can <math>x</math> have?</p>
28	<p>Evaluate: <math>\frac{1\frac{2}{5}}{3\frac{1}{3}} + 1\frac{3}{5}</math> (Express your answer as an improper fraction.)</p>
29	<p>An unfair coin has a <math>\frac{5}{6}</math> chance of coming up heads and <math>\frac{1}{6}</math> chance of coming up tails. If this coin is flipped 3 times, what is the probability the coin will flip heads exactly 2 times?</p>
30	<p>What is the distance between the points <math>(1, 5)</math> and <math>(13, 10)</math>?</p>

31	<p>Given that:</p> <ol style="list-style-type: none"> <li>1. Some cubies are not cuties.</li> <li>2. No cuties are fluffies.</li> </ol> <p>How many of the following statements <b>must</b> be true?</p> <ol style="list-style-type: none"> <li>1. No cubie is a fluffy.</li> <li>2. Some cubies are not fluffies.</li> <li>3. Some fluffies are not cubies.</li> <li>4. Some cubies are fluffies.</li> </ol>
32	<p>Solve the system of equations and give your answer as a coordinate triple <math>(a, b, c)</math>:</p> $\frac{2}{a} + \frac{3}{b} - \frac{2}{c} = 5$ $\frac{3}{a} + \frac{1}{b} + \frac{1}{c} = 6$ $\frac{1}{a} - \frac{1}{b} - \frac{1}{c} = 2$
33	<p>Given that <math>\sin \theta = \frac{3}{5}</math> and <math>\cos \theta = \frac{4}{5}</math>. Find the value of <math>\tan \theta</math>.</p>
34	<p>If <math>\frac{x}{y} = \frac{9y}{x}</math>, what are all possible values of the fraction <math>\frac{x}{y}</math>?</p>
35	<p>Kevin owns 14 regular coins and 2 loaded coins which have heads on both sides. I randomly pick a coin and flip it 5 times. Given that all 5 times the coin landed heads, what is the probability (as a fraction) that the coin I picked was loaded? (Hint: the answer is not <math>\frac{1}{8}</math>.)</p>
36	<p>A two-dimensional ice cream cone is formed by joining an equilateral triangle with side length 6 and a circle with radius <math>2\sqrt{3}</math>. What is the total area of the resulting shape?</p> 
37	<p>3 distinct points, <math>a</math>, <math>b</math>, and <math>c</math>, are randomly selected on the infinite number line. What is the probability that <math>a &lt; b &lt; c</math>? (Express your answer as a simplified fraction.)</p>

38

Two perpendicular diameters are drawn in a unit circle. A smaller circle is drawn so that it is tangent to the two diameters and to the unit circle. What is the radius of the smaller circle?



39

3 standard six-sided dice are rolled. What is the probability that the highest number rolled is a 4? (Perhaps on more than one die.)

40

Given that:

$$a^2 + b^2 = 1$$

$$c^2 + d^2 = 1$$

$$ac - bd = 1/2$$

Find:

$$ad + bc$$