

Name: _____

School: _____

Izzi Math Challenge 2025 - Grade 6

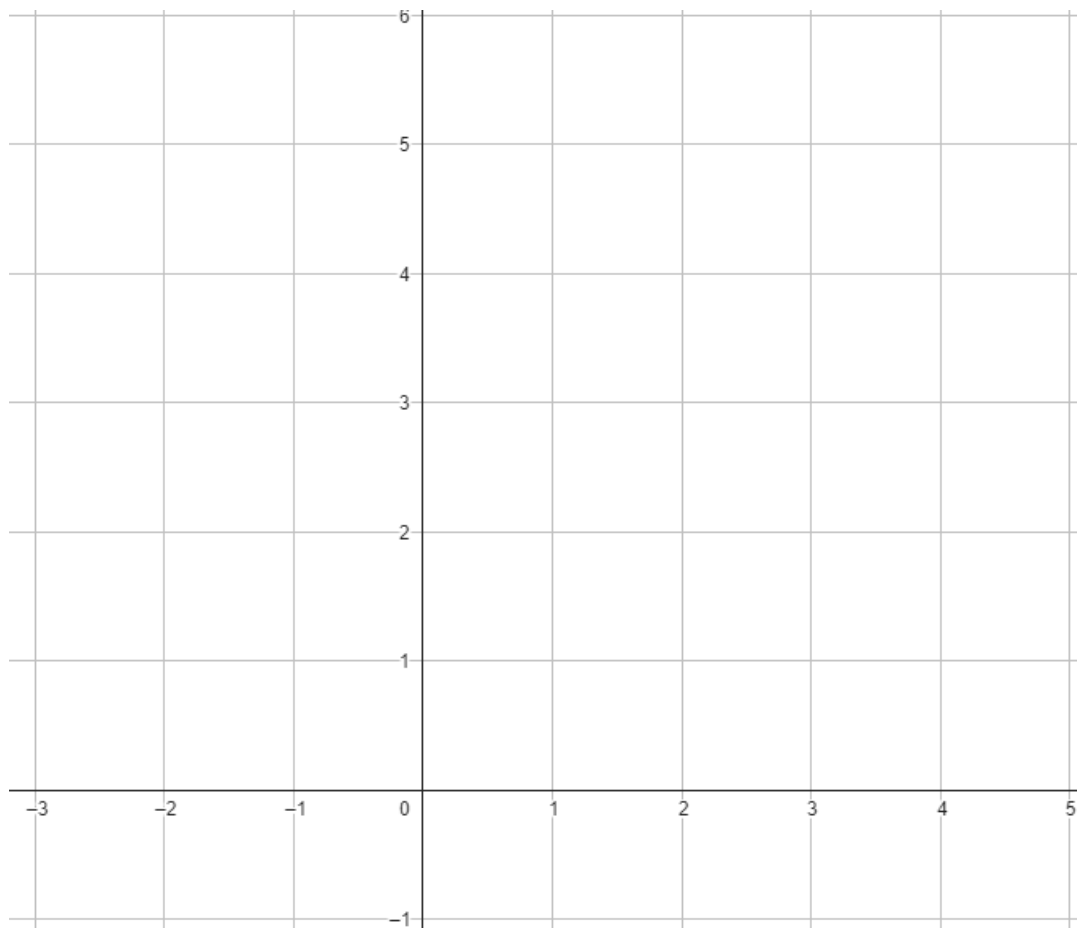


1. Five different integers multiplied together give a product of 30. What is the range of the possible values for their sum?
2. I think of a number, x . I obtain the number y by subtracting 1 from x . I then obtain a number z , by taking the reciprocals of x and subtracting 1 from it. I take the reciprocals of y and z and add them to obtain w . Write an expression in terms of x for w . Give your answer in its simplest form.
3. A parallelogram has side lengths of 4.2cm and 33mm and a diagonal that is 0.51 dm. Draw the parallelogram accurately. Measure and record the length of the parallelogram's other diagonal, as well as the measure of the parallelogram's angles
4. A hexomino is a shape made up of six congruent squares, such that each square has at least one side in common with another square. Two different hexominos have a line of symmetry, that is not parallel to any of the sides of the squares that make them up. Draw them.
5. The population of deer in a forest decreased by 34% one drought year, but the next year it returned to what they had been two years prior. What was the percentage increase of the deer population in the second year? Give your answer as a mixed number in its simplest form.
6. Below is a non-linear sequence of integers. How many of the first 100 terms of the sequence are divisible by 3?

1, 1, 3, 4, 4, 6, 7, 7, 9, 10, 10

7. Three integers in the ratio $1:t:t^2$ have a product of 2744. Find all possible values of the three integers.

8. Not all dice are cubes. It is possible, for example, to make a 4-"sided" dice (D4) by labelling each vertex of a tetrahedron (triangular pyramid) with a unique number from 1 to 4 inclusive. When the D4 is rolled, it's the number on the upward-pointing vertex that is scored. Anton and Larissa are playing a dice game in which they take turns rolling two dice of their choice and each player scores a point if they roll a pair (matching numbers on each dice). Larissa chooses to roll two regular six-sided dice (D6). Anton chooses to roll one D6 and one D4. Who has the advantage (higher probability of rolling a pair)?
9. The graph of the function $y = \frac{5}{2}x + \frac{3}{2}$ intersects the x-axis at A and the y-axis at point D. The graph of the function $y = \frac{7}{2} - \frac{5}{2}x$ intersects the x-axis at point B and the y-axis at point C. Find the area of the quadrilateral ABCD.



10. Triangle $\triangle ABC$ is given in the diagram below. Its reflection in the line $y = x$ is $\triangle DEF$. The reflection of $\triangle ABC$ in the line $y = -x$ on the other hand is $\triangle GHJ$. What kind of transformation transforms $\triangle DEF$ into $\triangle GHJ$? What is its inverse (i.e. the transformation that transforms $\triangle GHJ$ into $\triangle DEF$)?

