

Name:.....

Class/Group:

Part I

1. Solve the equation $3(x + 1) = 60$ Answer: $x =$ _____ (1/0/0)

2. Write 20 as a product of prime numbers. Answer: _____ (2/0/0)

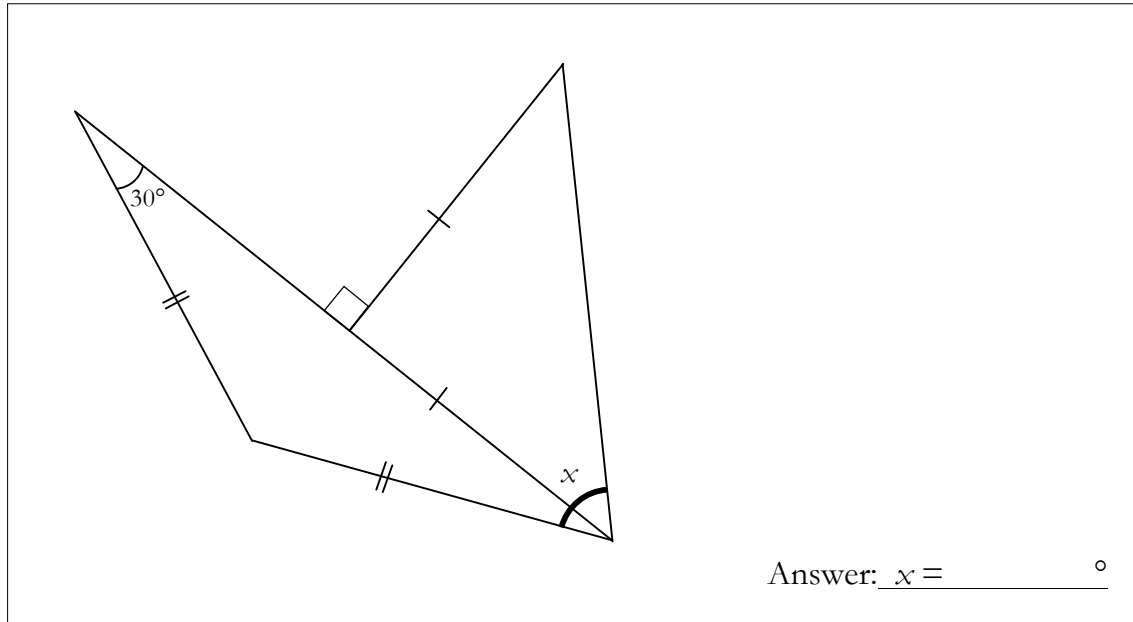
3. The average length for a certain kind of bacteria is 0.000000313 m. What number should x be if we want to write this length in scientific notation as $(3.13 \cdot 10^x \text{ m})$? Answer: $x =$ _____ (1/0/0)

4. The number of hours of sleep that a child needs can be calculated approximately using the formula $S = 15 - \frac{n}{2}$ where S is the number of hours of sleep per night and n is the age of the child in years. William is 6 years old. How many hours of sleep does he need according to the formula? Answer: _____ (2/0/0)

5. Simplify the expression $2(2a + b) + 3 - (2 + 2b)$ as much as possible. Show your solution in the space below.

Answer: _____ (1/1/0)

6. The figure consists of two isosceles triangles.
Angle x in the figure consists of two smaller angles.
Calculate angle x . Write your solution in the figure and the space below. The figure is not drawn to scale.



7. In a bowl there are different kinds of candies, all of the same size. Only one candy is yellow. If you take a candy without looking, the probability of getting a yellow candy is 0.05. How many candies are there in the bowl?

Answer: _____ (0/2/0)

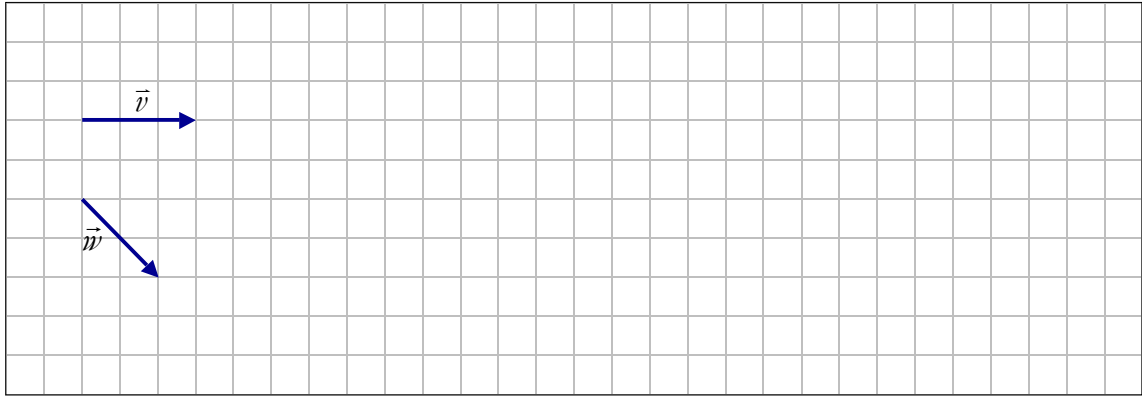
8.

Year	1980	2010
CPI (Consumer Price Index)	100	303

By what percentage have prices risen over the period from 1980 to 2010?

Answer: _____ (0/1/0)

9. On the squared paper the vectors $\vec{v}$ and $\vec{w}$ are shown
On the same squared paper, draw the vector $\vec{w} - 2\vec{v}$



(1/1/0)

10. $A = \frac{B}{B+1}$ where B is a positive number.

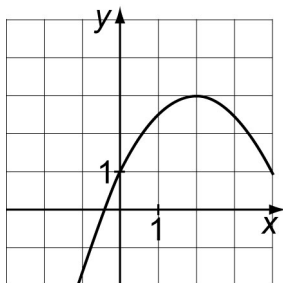
Will A be greater or smaller if B is doubled?

Explain your answer in the space below.

Answer: _____

(2/1/1)

11. In the coordinate system below, the graph for a function is drawn. Use the graph to determine for what values of x the inequality $y \geq 2$ holds.



Answer: _____ (0/0/2)

12. Write an appropriate symbol in each of the boxes below between the given statements. Choose from the symbols $\Leftarrow$, $\Rightarrow$ and $\Leftrightarrow$. (0/1/1)

The integer x ends with the digit zero The integer x is divisible by two

$y \geq 2$ $y > 2$

$2z + 4 = 6$ $z = 1$

13. Find n if $4^n + 4^n + 4^n + 4^n = 4^{12}$ Answer: $n =$ _____ (0/0/2)