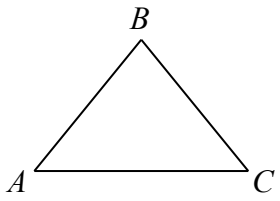
0 (a). Evaluate $\dfrac{9+2\times 3}{3}$.

0 (b). Let t be TNYWR.
What is the area of a triangle with base $2t$ and height $3t-1$?

0 (c). Let t be TNYWR.
In the diagram, $\triangle ABC$ is isosceles with $AB = BC$. If $\angle BAC = t^\circ$, what is the measure of $\angle ABC$, in degrees?



1 (a). If w is a positive integer with $w^2 - 5w = 0$, what is the value of w?

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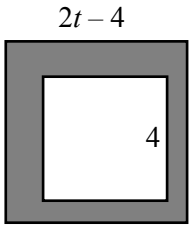
1 (b). Let t be TNYWR.

In the diagram, the larger square has side length $2t - 4$ and the smaller square has side length 4. What is the area of the shaded region?



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1 (c). Let t be TNYWR.

Consider the three-digit positive integers of the form $xy0$, where x and y are digits with $x \neq 0$. How many of these integers are divisible by both 11 and t?

2 (a). When the integer 300^8 is written out, it has d digits. What is the value of d?

2 (b). Let t be TNYWR.
The area of the triangle formed by the line $\sqrt{k}x + 4y = 10$, the x-axis and the y-axis is t. What is the value of k?

2 (c). Let t be TNYWR.
Justin measures the heights of three different trees: a maple, a pine and a spruce. The maple tree is 1 m taller than the pine tree and the pine tree is 4 m shorter than the spruce tree. If the ratio of the height of the maple tree to the spruce tree is t, what is the height of the spruce tree, in metres? (Write your answer in the form $\frac{a}{b}$, where a and b are positive integers with no common divisor larger than 1.)

3 (a). Suppose that $x = \sqrt{20 - 17 - 2 \times 0 - 1 + 7}$. What is the value of x?

3 (b). Let t be TNYWR.
If the graph of $y = 2\sqrt{2t}\sqrt{x} - 2t$ passes through the point (a, a), what is the value of a?

3 (c). Let t be TNYWR.
Suppose that

$$\frac{1}{2^{12}} + \frac{1}{2^{11}} + \frac{1}{2^{10}} + \cdots + \frac{1}{2^{t+1}} + \frac{1}{2^t} = \frac{n}{2^{12}}$$

(The sum on the left side consists of $13 - t$ terms.)
What is the value of n?