

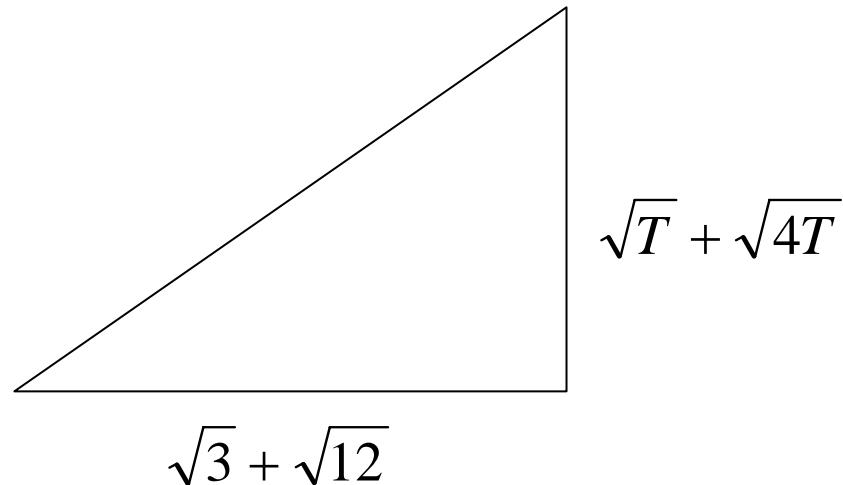
A1 How many integer solutions does the inequality $4x^2 - 4x - 35 \leq 0$ have?



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Mini Relay Round



A2 *T is the number that you will receive*



What is the length of the hypotenuse of this right-angled triangle?



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A3 *T is the number that you will receive*

The line l has equation $x + 2y = 7$. The line m is perpendicular to l and passes through the point (T, T) . Line m also passes through point P which has y -coordinate 1.

What is the x -coordinate of point P ?



A4 *T is the number that you will receive*

What is the value of x that satisfies the equation:

$$\frac{3x - 2}{4} - \frac{2x - 3}{3} = \frac{x - 1}{T} ?$$



B1 The recurring decimal $0.1363636 \dots$ (or $0.1\dot{3}\dot{6}$, using recurring decimal notation) may be written as a fraction in the form $\frac{a}{22}$.

What is the value of the whole number a ?



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B2 T is the number that you will receive

$$d = \sqrt{\frac{1 + \frac{4T}{1 + 4T^2}}{1 - \frac{4T}{1 + 4T^2}}}$$

What is the value of $50d$?

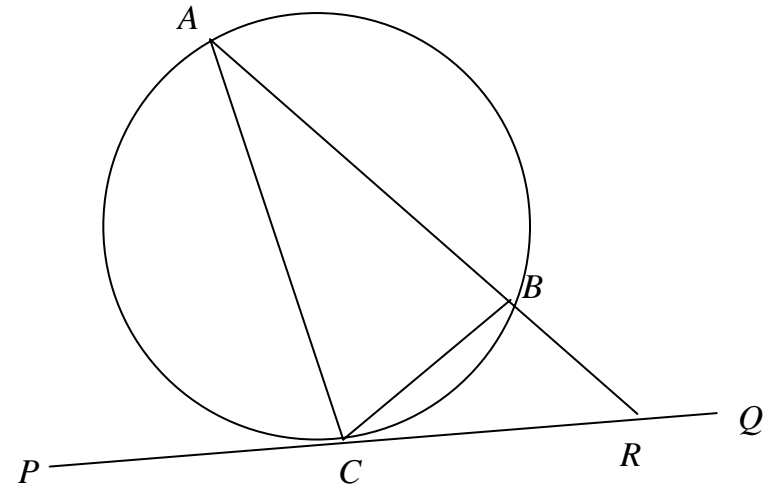


B3 *T is the number that you will receive*

In the diagram, the line PQ is a tangent to the circle. The lengths AB and AC are equal. The line AB produced meets the tangent at the point R .

$$\angle PCA = T^\circ.$$

What is the value, in degrees, of $\angle ARP$?



B4 *T is the number that you will receive*

*H is the highest common factor of T and 700
and L is the lowest common multiple of T
and 700. What is the value of $L \div H$?*



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C1 Some students were asked to draw their favourite polygon on a piece of paper. The frequency table below shows information about the number of sides of the resulting selection of polygons.

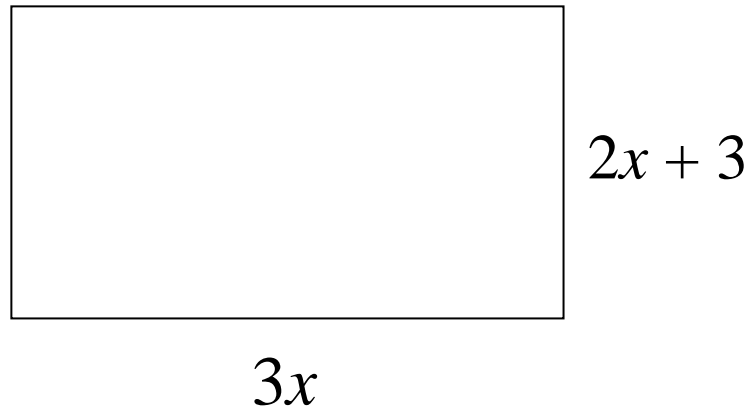
Number of sides	Frequency
4	2
5	2
6	x

The mean number of sides is 5.4. What is the value of x ?



C2 *T is the number that you will receive*

The area of this rectangle is T . What is its perimeter?



C3 *T is the number that you will receive*

x and y satisfy the simultaneous equations:

$$3x + y = T$$

$$9x + 2y = 28$$

What is the value of xy ?



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C4 *T is the number that you will receive*

A sphere with radius T cm has the same total surface area as a closed cylinder which has radius 5cm. What is the height of the cylinder?



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