



The CENTRE for EDUCATION
in MATHEMATICS and COMPUTING
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2021 Canadian Team Mathematics Contest

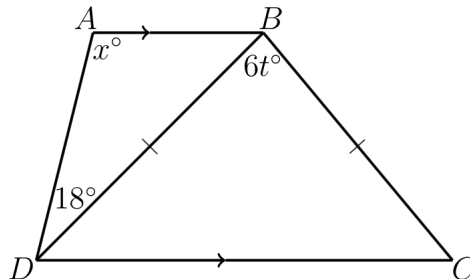
Relay Problem #1 (Seat a)

If $(y - 5)^2 = (y - 9)^2$, what is the value of y ?

Relay Problem #1 (Seat b)

Let t be TNYWR.

In the diagram, $ABCD$ is a trapezoid with AB parallel to DC and $BC = BD$. If $\angle DAB = x^\circ$, $\angle ADB = 18^\circ$, and $\angle DBC = 6t^\circ$, what is the value of x ?



Relay Problem #1 (Seat c)

Let t be TNYWR.

There are t cards. Each card has one picture printed on it. The picture on each card is either of a dinosaur or a robot. Each dinosaur and robot is coloured either blue or green.

- 16 cards have blue dinosaurs
- 14 cards have green robots
- 36 cards have blue robots

If a card is chosen at random, what is the probability, written as a fraction in lowest terms, that it has either a green dinosaur or a blue robot printed on it?



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Relay Problem #2 (Seat a)

A line passing through $(-5, k)$ and $(13, -7)$ has a slope of $-\frac{1}{2}$. What is the value of k ?

Relay Problem #2 (Seat b)

Let t be TNYWR

Three buckets, labelled A , B , and C , are filled with water.

The amount of water in bucket A is 6 litres more than half of the amount in bucket C .

The amount of water in bucket B is the average (mean) of the amounts in buckets A and C .

The amount of water in bucket C is $18t + 8$ litres.

In total, how many litres of water are there in the three buckets?

Relay Problem #2 (Seat c)

Let t be TNYWR

The vertex and the two x -intercepts of the parabola with equation $y = ax^2 + 6ax$ are joined to form a triangle with an area of t square units. If $a < 0$, what is the value of a ?

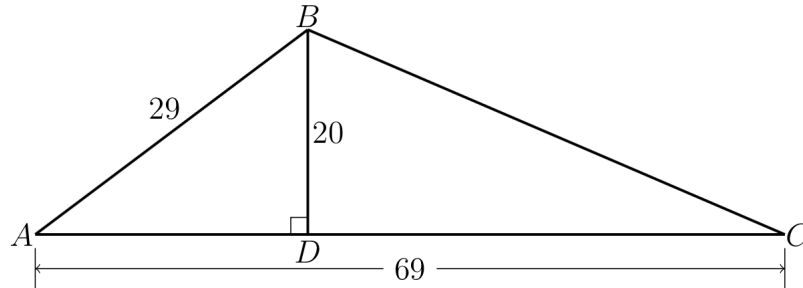


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Relay Problem #3 (Seat a)

In the diagram, D is on side AC of $\triangle ABC$ so that BD is perpendicular to AC . If $AB = 29$, $AC = 69$, and $BD = 20$, what is the length of BC ?



Relay Problem #3 (Seat b)

Let d be TNYWR.

Lawrence runs $\frac{d}{2}$ km at an average speed of 8 minutes per kilometre.

George runs $\frac{d}{2}$ km at an average speed of 12 minutes per kilometre.

How many minutes more did George run than Lawrence?

Relay Problem #3 (Seat c)

Let t be TNYWR.

The sum of two numbers is t and the positive difference between the squares of these two numbers is 208. What is the larger of the two numbers?