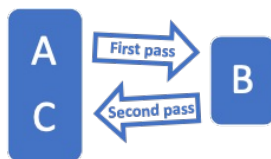
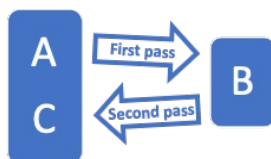


Practice Question A0



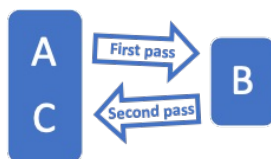
Do not turn over until instructed to do so

Practice Question A0



Do not turn over until instructed to do so

Practice Question A0



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A0.

What is the 11th prime number?

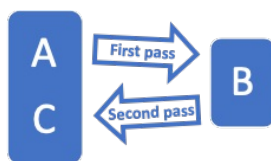
A0.

What is the 11th prime number?

A0.

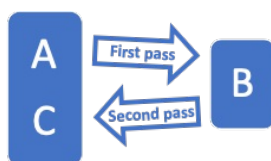
What is the 11th prime number?

Question A1



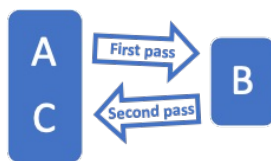
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Question A1



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Question A1



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A1.

Jeri writes four letters, each to her four friends Jan, Jackie, Jodi, and Jill.

She also addresses an envelope to each friend. However, she randomly places the letters into the envelopes.

If $\frac{a}{b}$ is the probability that no one receives the correct letter, find the value of a .

Note: $\frac{a}{b}$ is in lowest terms.

A1.

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A1.

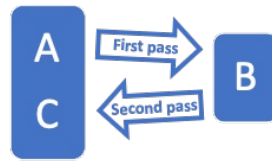
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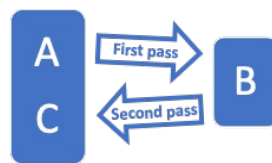
Note: $\frac{a}{b}$ is in lowest terms.

Question A2



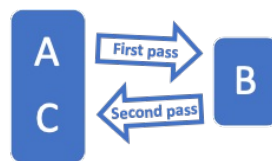
Do not turn over until instructed to do so

Question A2



Do not turn over until instructed to do so

Question A2



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A2.

There are 3 critical points to the function $f(x) = x^4 - 4x^3 - 2x^2 + 12x + 1$.

Find the sum of the x – coordinates of these 3 points.

A2.

There are 3 critical points to the function $f(x) = x^4 - 4x^3 - 2x^2 + 12x + 1$.

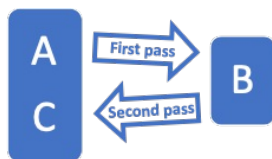
Find the sum of the x – coordinates of these 3 points.

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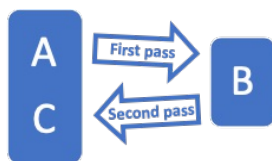
Find the sum of the x – coordinates of these 3 points.

Question A3



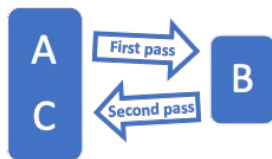
Do not turn over until instructed to do so

Question A3



Do not turn over until instructed to do so

Question A3



Do not turn over until instructed to do so

A3.

Find the area between the curves $y = 4x + 1$ and $y = x^2 - 4$.

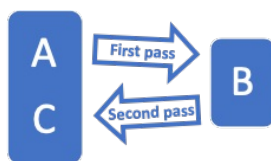
A3.

Find the area between the curves $y = 4x + 1$ and $y = x^2 - 4$.

A3.

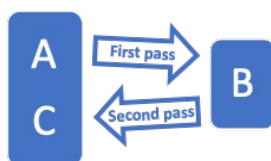
Find the area between the curves $y = 4x + 1$ and $y = x^2 - 4$.

Question A4



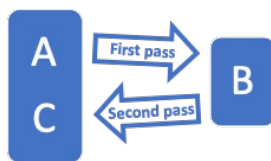
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Question A4



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Question A4



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A4.

Find the minimum value of the function $\frac{y-3}{2} = \sin(2x)$.

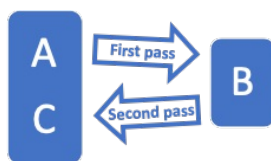
A4.

Find the minimum value of the function $\frac{y-3}{2} = \sin(2x)$.

A4.

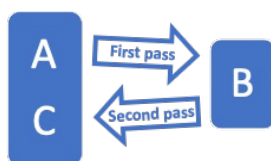
Find the minimum value of the function $\frac{y-3}{2} = \sin(2x)$.

Question A5



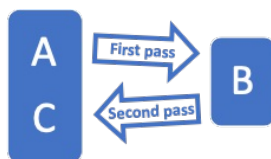
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Question A5



Do not turn over until instructed to do so

Question A5



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A5.

The variables a , b , and c are integers with $a < b < c$ and $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 1$.

Find the value of $a + c$.

A5.

The variables a , b , and c are integers with $a < b < c$ and $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 1$.

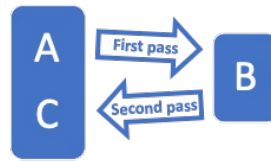
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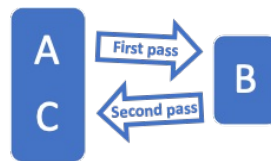
Find the value of $a + c$.

Question A6



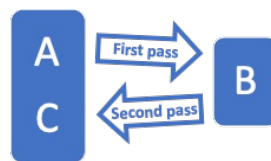
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Question A6



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Question A6



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A6.

Evaluate $\int_0^{\frac{\pi}{2}} \sin(x)\cos(x)dx.$

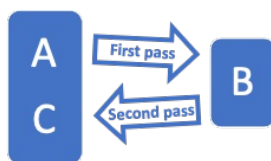
A6.

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A6.

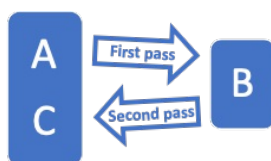
Evaluate $\int_0^{\frac{\pi}{2}} \sin(x)\cos(x)dx.$

Question A7



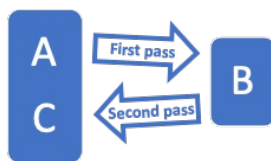
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Question A7



Do not turn over until instructed to do so

Question A7



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A7.

In $\triangle ABC$, $\angle ABC = 90^\circ$, $A(15, 3)$, $B(6, 0)$ and $C(2, y)$. Find the value of y .

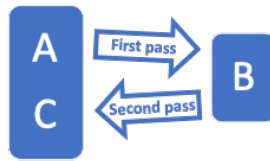
A7.

In $\triangle ABC$, $\angle ABC = 90^\circ$, $A(15, 3)$, $B(6, 0)$ and $C(2, y)$. Find the value of y .

A7.

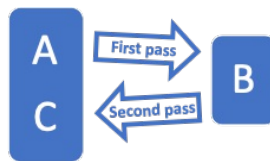
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Question A8



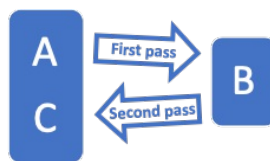
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Question A8



Do not turn over until instructed to do so

Question A8



Do not turn over until instructed to do so

A8.

The equation of the tangent line to $(3x + 2y)^2 + (x - y)^2 = 25$ at the point $(-1, 3)$ is $y = mx + b$.

Find the value of $b - m$.

A8.

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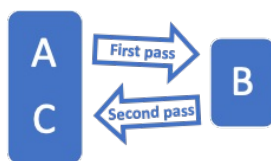
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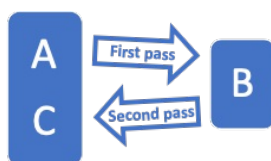
Find the value of $b - m$.

Question A9



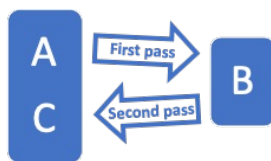
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Question A9



Do not turn over until instructed to do so

Question A9



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A9.

Six people sit around a table and each person states their age.
Later, each person adds the ages of the other five people at the table.

The six sums are: 104, 119, 105, 115, 108, and 114.

What is the age of the youngest person?

A9.

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