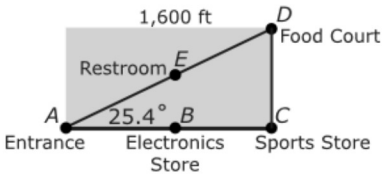
14. **Part A**

Alex is visiting a local shopping mall that has a rectangular shape with a diagonal walkway that goes from the entrance of the mall to the food court. The floor plan is shown.



Alex needs to stop at the sports store on the way to the food court. How much longer, in feet, does he walk than if he walks directly from the entrance to the food court along the diagonal walkway? Show work to justify your answer.

Enter your answer and your work in the space provided.

[A] [π]

- Math symbols
- Relations
- Geometry
- Groups
- Trigonometry
- Statistics
- Greek

Part B

A walkway connects the restroom and the sports store. The restroom and electronics store are both at the midpoints of their respective walkways. A separate walkway, which is perpendicular to the walkway between the entrance and the sports store, connects the restroom to the electronics store.

What is the distance, in feet, of the walkway that connects the restroom to the electronics store? Show work to justify your answer.

Enter your answer and your work in the space provided.

[A] [π]

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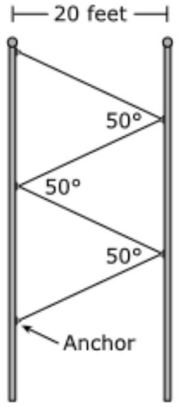
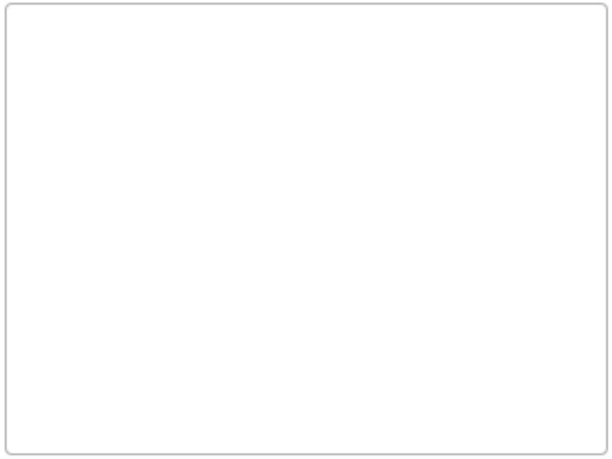
15. City workers will be hanging cable between two poles. The poles are 20 feet apart and perpendicular to the ground. The cable will cross back and forth between equally spaced anchors placed on the poles and will be pulled tight. A section of the design is shown in the figure.

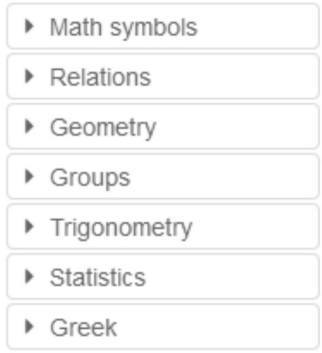


Let n represent the total number of anchors placed on the two poles. Create an expression to represent the length, in feet, of cable needed for n anchors.

Explain how you determined the values in your expression.

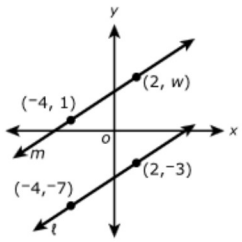
Enter your expression and your explanations in the space provided.





16. **Part A**

Line ℓ passes through the points $(-4, -7)$ and $(2, -3)$ on the coordinate plane.
Line m passes through the points $(-4, 1)$ and $(2, w)$.

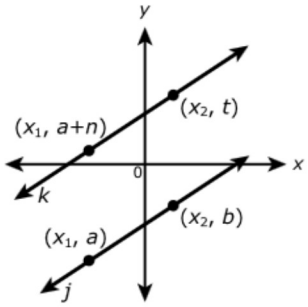


For what value of w is line m parallel to line ℓ?

Enter your answer in the box.

Part B

Given the figure, write an expression that can replace t and will guarantee that lines j and k are parallel.
Support your answer.



Enter your expression and your support in the space provided.

[A] [π]

- Math symbols
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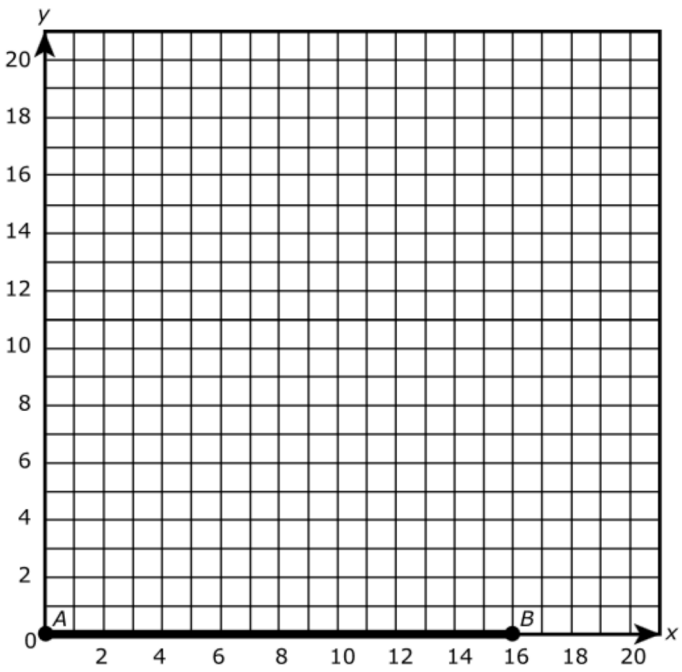
17. **Part A**

$\triangle ABC$ meets the given criteria:

- The perimeter of $\triangle ABC$ is 50 units.
- Only two of the sides have the same length.
- The third side is 16 units long, given in the diagram.



What are the coordinates of point *C* that will meet the criteria for $\triangle ABC$?

A. $(6.25, 8)$

B. $(8, 6.25)$

C. $(8, 15)$

D. $(15, 8)$

Part B

Point *C* is placed at $(12, 16)$ and point *B* is moved along the *x*-axis. Triangle *ABC* is still an isosceles triangle and point *A* is still at the origin. What is the new perimeter of $\triangle ABC$? Provide valid mathematical reasoning and calculations to support your answer.

Enter your answer, your reasoning, and your calculations in the space provided.

[A] [π]

Math symbols
Relations
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Groups
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Statistics
Greek