TRIGONOMETRY FINAL UNIT PROJECT

Name: _____

Block: _____

Due date: _____

Instructions:

You will be designing a 6 hole mini golf course based on the paths travelled by the golf balls provided to you. You must then use your knowledge of trigonometry to solve for the **distance travelled by each ball** given the length directly from the ball to the hole.

There are 6 steps to each question:

- Design and colour the hole. Keep in mind that when you're designing the hole the path of the ball (length x and y) needs to be **within the hole.** The rest of the triangle **does not**. So be creative! Come up with some cool shapes!
- Find the first two angles using the two sides that you're given.
- Using the fact that all angles in a triangle equal 180 degrees, calculate the remaining angles using the right angles and the ones you just measured.
- Now it's time to calculate the distance travelled by the ball. First calculate how long the first stroke was **using sin**. (Be careful you choose the correct angle to use!) This is length x.
- Then calculate how long the second stroke was **using cos**. (Be careful you choose the correct angle to use!) This is length y.
- Now calculate the total distance the ball travelled. Compare this to the direct distance to the hole. Was it bigger or smaller?

Marking:

Overall features

- Each hole is unique and coloured (6 marks, 1 mark each hole)
- Hand it in on time (4 marks)

Individual Holes

- Angle m and n are calculated correctly (6 marks, 1 mark label triangle each, 1 mark set up ratio each, 1 mark calculate for angle each)
- Angle a and b are calculated correctly (2 marks, 1 mark each)
- First stroke length measured correctly (3 marks, 1 mark label triangle, 1 mark set up ratio, 1 mark calculate for missing side)
- Second stroke length measured correctly (3 marks, 1 mark label triangle, 1 mark set up ratio, 1 mark calculate for missing side)
- Total length calculated correctly and stated whether bigger or smaller than direct distance (1 marks, 0.5 mark each)

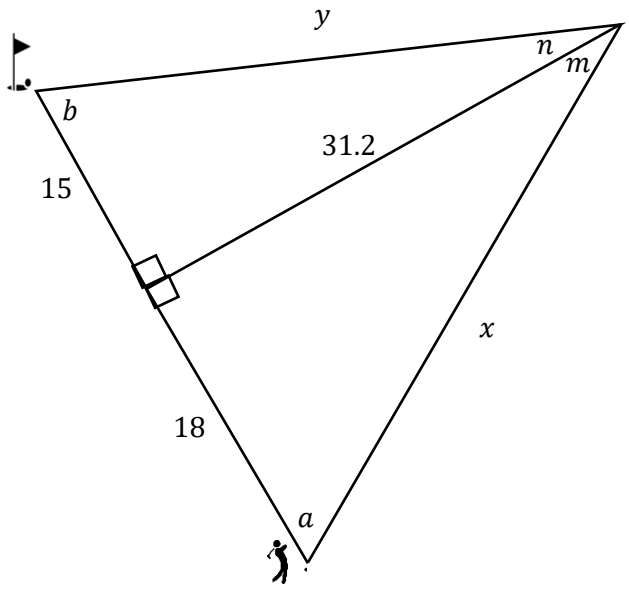
Total

- 15 marks per hole (6 holes total)
- 10 marks overall

100 marks total

Hole 1:

a) Design the hole around the triangle so that the path the ball travels is contained by the hole.



b) Calculate angle m and angle n using the two sides you're given. Label them on the triangles.

c) Calculate angles a and b using the fact that all angles in a triangle add up to 180 degrees. Label them on the triangles.

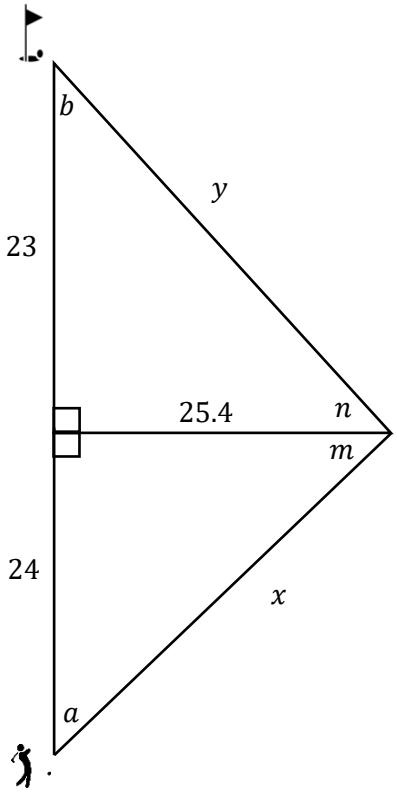
d) Calculate distance x **using sin** and circle or highlight it.

e) Calculate distance y **using cos** and circle or highlight it.

f) Calculate total distance and circle or highlight it. Was it bigger or smaller than the direct distance to the hole?

Hole 2:

a) Design the hole around the triangle so that the path the ball travels is contained by the hole.



b) Calculate angle m and angle n using the two sides you're given. Label them on the triangles.

c) Calculate angles a and b using the fact that all angles in a triangle add up to 180 degrees. Label them on the triangles.

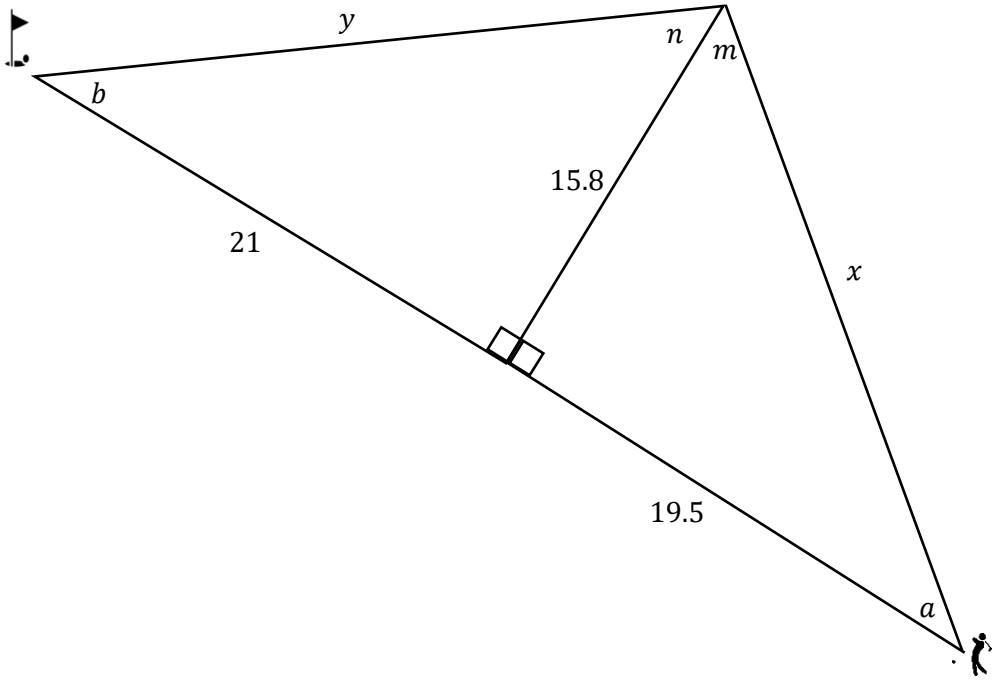
d) Calculate distance x **using sin** and circle or highlight it.

e) Calculate distance y **using cos** and circle or highlight it.

f) Calculate total distance and circle or highlight it. Was it bigger or smaller than the direct distance to the hole?

Hole 3:

a) Design the hole around the triangle so that the path the ball travels is contained by the hole.



b) Calculate angle m and angle n using the two sides you're given. Label them on the triangles.

c) Calculate angles a and b using the fact that all angles in a triangle add up to 180 degrees. Label them on the triangles.

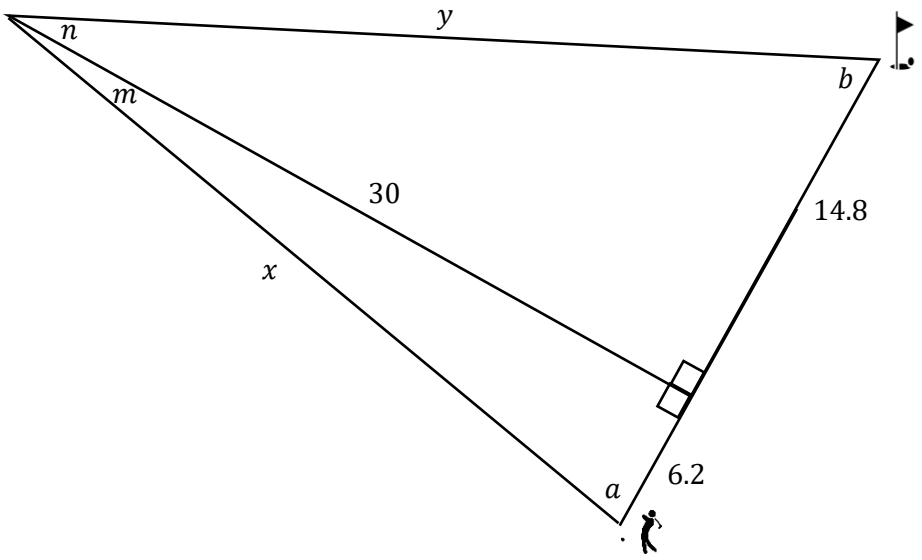
d) Calculate distance x **using sin** and circle or highlight it.

e) Calculate distance y **using cos** and circle or highlight it.

f) Calculate total distance and circle or highlight it. Was it bigger or smaller than the direct distance to the hole?

Hole 4:

a) Design the hole around the triangle so that the path the ball travels is contained on the hole.



b) Calculate angle m and angle n using the two sides you're given. Label them on the triangles.

c) Calculate angles a and b using the fact that all angles in a triangle add up to 180 degrees. Label them on the triangles.

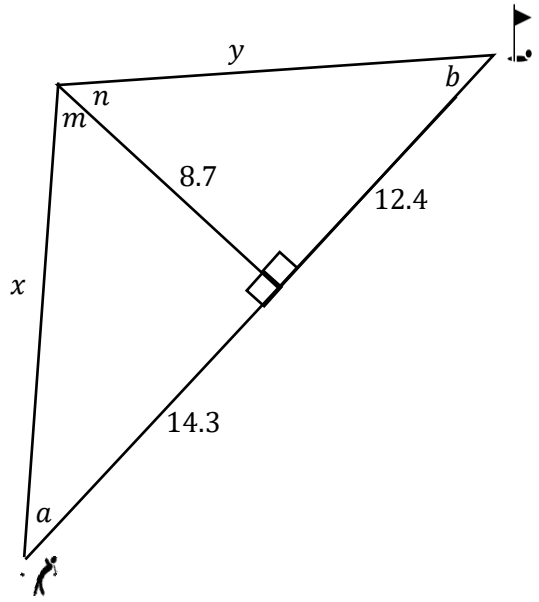
d) Calculate distance x **using sin** and circle or highlight it.

e) Calculate distance y **using cos** and circle or highlight it.

f) Calculate total distance and circle or highlight it. Was it bigger or smaller than the direct distance to the hole?

Hole 5:

a) Design the hole around the triangle so that the path the ball travels is contained by the hole.



b) Calculate angle m and angle n using the two sides you're given. Label them on the triangles.

c) Calculate angles a and b using the fact that all angles in a triangle add up to 180 degrees. Label them on the triangles.

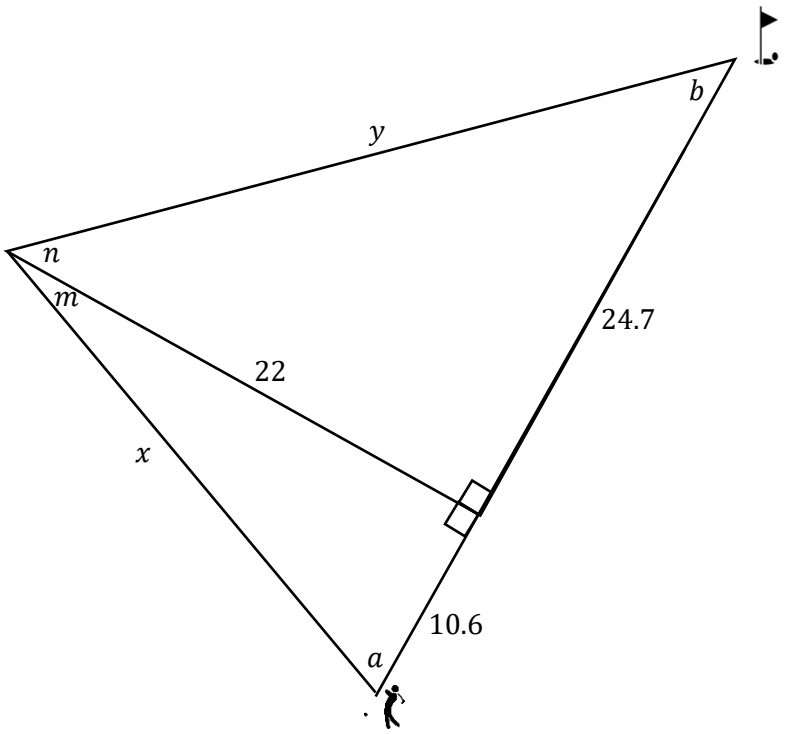
d) Calculate distance x **using sin** and circle or highlight it.

e) Calculate distance y **using cos** and circle or highlight it.

f) Calculate total distance and circle or highlight it. Was it bigger or smaller than the direct distance to the hole?

Hole 6:

a) Design the hole around the triangle so that the path the ball travels is contained by the hole.



b) Calculate angle m and angle n using the two sides you're given. Label them on the triangles.

c) Calculate angles a and b using the fact that all angles in a triangle add up to 180 degrees. Label them on the triangles.

d) Calculate distance x **using sin** and circle or highlight it.

e) Calculate distance y **using cos** and circle or highlight it.

f) Calculate total distance and circle or highlight it. Was it bigger or smaller than the direct distance to the hole?