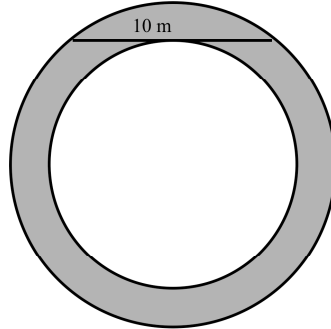


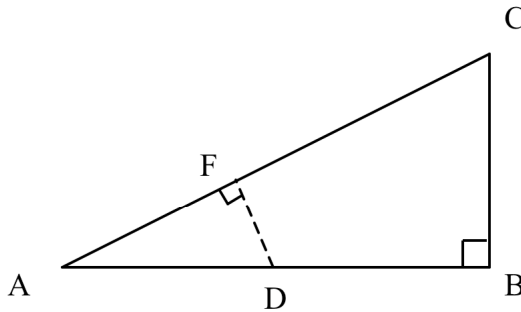
Student Name: _____

1. A circular path (shaded) surrounds a circular lake. The longest straight-line distance across the path is 10 metres. What is the total area of the path?



Answer: _____

2. ABC is a right triangle with the right angle at B . D is the midpoint of AB , and F is chosen on AC such that DF is perpendicular to AC . If $|AB|=2$ and $|BC|=1$, find the area of triangle ADF .



Answer: _____

3. At what time between 2 P.M. and 3 P.M. do the minute hand and the hour hand of a clock make an angle of 180° with each other? Round your answer to the nearest minute.

Answer: _____

4. You shuffle a deck of 54 cards (standard 52 plus the two jokers), and then you draw cards from the deck one at a time until you finish drawing the whole deck. What is the probability that you draw the two jokers before any of the four aces?

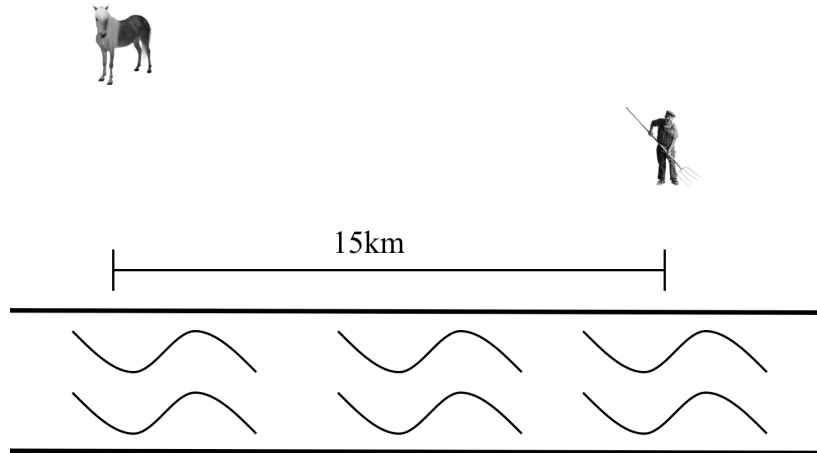
Answer: _____

5. What is the sum of the digits of all integers from 1 to 100?

Answer: _____

Student Name: _____

6. A farmer stands 3km away from a straight river. His horse is standing 5km away from the river, 15km downstream from the farmer. The farmer wishes to get some water from the river and bring it to his horse. What is the shortest distance the farmer must travel? (Drawing not to scale).



Answer: _____

7. A man takes the train from work every day and arrives at the station at precisely 6pm, at which time his wife arrives at the station to pick him up and drive him home. One day, he takes an earlier train and arrives at the station at 5pm, and he starts to walk home. He meets his wife at some point on the way home, where she picks him up and they drive home, arriving 20 minutes earlier than usual. For how long has the man been walking home from the station?

Answer: _____

8. A right-angled triangle has all integer side lengths, and one of the sides has length 11. What is its perimeter?

Answer: _____