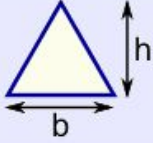
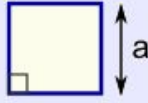
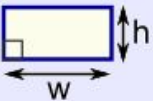
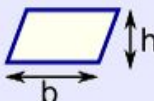
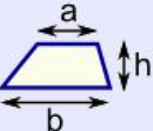

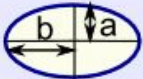



## Lab – What's the area?

Michael is painting the side of his truck. He's frugal so he wants to make sure he buys only as much paint as he needs. Unfortunately his truck has some strange shapes so he needs some help calculating the surface area of the truck before heading to the paint store.

You will need the following formulas to help you figure out the area of each shape:

	<u>Triangle</u> Area = $\frac{1}{2} \times b \times h$ b = base h = vertical height		<u>Square</u> Area = $a^2$ a = length of side
	<u>Rectangle</u> Area = $w \times h$ w = width h = height		<u>Parallelogram</u> Area = $b \times h$ b = base h = vertical height
	<u>Trapezoid (US)</u> <u>Trapezium (UK)</u> Area = $\frac{1}{2}(a+b) \times h$ h = vertical height		<u>Circle</u> Area = $\pi \times r^2$ Circumference = $2 \times \pi \times r$ r = radius
	<u>Ellipse</u> Area = $\pi ab$		<u>Sector</u> Area = $\frac{1}{2} \times r^2 \times \theta$ r = radius $\theta$ = angle in <b>radians</b>

### Skills we are practicing:

1. Reading in user input using the Scanner class.

2. We are going to practice returning information from a method using a return type. This means that your method will no longer be void. Though the return type could be any data type, in this lab we will be returning int.

\*Also, remember that methods may be passed parameters, but are not required to be. In this lab we are not passing any parameters to our methods.

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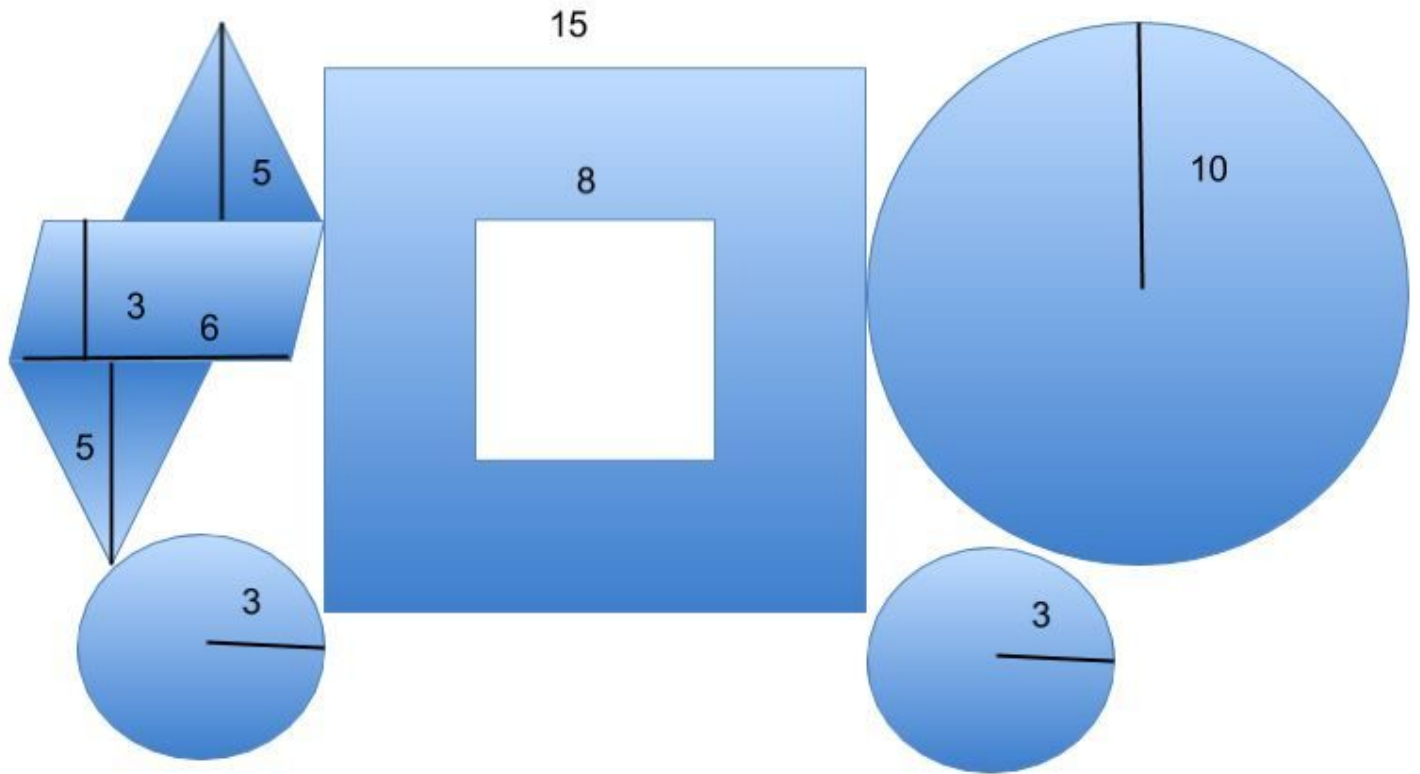
### Sample output:

```
The area of a triangle is: 1/2 * base * height
base > 8
height > 9
The area of this shape is: 36
```

```
The area of a triangle is: 1/2 * base * height
base > 10
height > 10
The area of this shape is: 50
```

```
The total area of Michael's truck is :
```

Michael's Truck:



---

Starting code:

```
import java.util.Scanner;

public class TruckArea
{
    private static Scanner in = new Scanner(System.in);

    public static void main(String[] args)
    {
        int surfaceArea = 0;
        surfaceArea += triangle();
        surfaceArea += triangle();
        //TODO: add calls to other methods for each of the shapes needed
        System.out.println("\nThe total area of Michael's truck is : " + surfaceArea);
    }

    public static int triangle()
    {
        System.out.println("\nThe area of a triangle is: 1/2 * base * height");
        System.out.print("base > ");
        int base = in.nextInt();
        System.out.print("height > ");
        int height = in.nextInt();
        int area = (int)(0.5 * base * height);
        System.out.println("The area of this shape is: " + area);
        return area;
    }

    //TODO: write methods for each of the different shapes
}
```