

First name: \_\_\_\_\_ Last name: \_\_\_\_\_

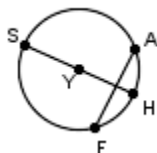
Student ID: \_\_\_\_\_

## Geometry 1 Homework

### Basic problems

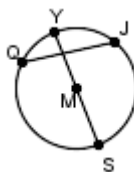
#### 1. Find the circumference and area. Leave your answer in terms of $\pi$ . Show work!

1.



$$SH = 54 \text{ mm}$$

2.



$$MS = 71 \text{ in}$$

#### 2. Leave your answer in terms of $\pi$ where necessary. Show work!

1.

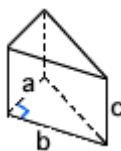


$$\begin{aligned} a &= 54 \text{ cm} \\ b &= 23 \text{ cm} \\ c &= 29 \text{ cm} \end{aligned}$$

Volume:

Surface area:

2.

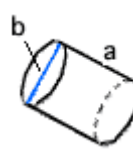


$$\begin{aligned} a &= 6 \text{ in} \\ b &= 8 \text{ in} \\ c &= 12 \text{ in} \end{aligned}$$

Volume:

Surface area:

3.



$$\begin{aligned} a &= 4 \text{ m} \\ b &= 23 \text{ m} \end{aligned}$$

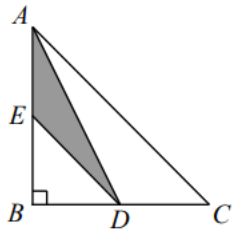
Volume:

Surface Area:

**Challenge problems:**

1. Draw the largest possible square inside a circle, and find the fraction of the circle that the square takes up.

2. The area of the isosceles  $\triangle ABC$  is 36;  $E$  and  $D$  are the midpoints of the sides they are on. What is the area of  $\triangle ADE$ ?

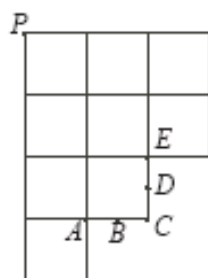


3. Each of the 12 edges of a cube is colored either red or green. Every face of the cube has at least one red edge. What is the smallest number of red edges?

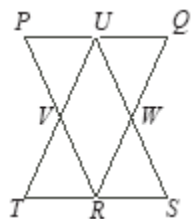
4. The area of a rectangle is 12 square meters. The lengths of the sides, in meters, are whole numbers. What is the greatest possible perimeter?

5. Rectangular tiles, which measure 6 by 4, are arranged without overlapping, to create a square. What is the minimum number of these tiles needed to cover a perfect square?

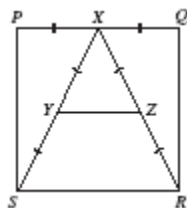
6. In the diagram, a shape is formed using unit squares, with B the midpoint of AC and D the midpoint of CE. The line which passes through P and cuts the area of the shape into two pieces of equal area also passes through which point?



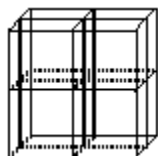
7.  $\triangle PQR$  and  $\triangle STU$  has an area of 1. In  $\triangle PQR$ ,  $U$ ,  $W$  and  $V$  are the midpoints of the sides. In  $\triangle STU$ ,  $R$ ,  $V$ , and  $W$  are the midpoints of the sides. What is the area of parallelogram  $UVRW$ ?



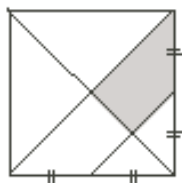
8.  $PQRS$  is a square with side length 8.  $X$  is the midpoint of side  $PQ$ , and  $Y$  and  $Z$  are the midpoints of  $XS$  and  $XR$ , respectively. What is the area of trapezoid  $YZRS$ ?



9. A cube measures  $10\text{ cm} \times 10\text{ cm} \times 10\text{ cm}$ . Three cuts are made parallel to the faces of the cube, creating eight separate solids which are then separated. What is the increase in the total surface area?



10. A square is divided, as shown. What fraction of the area of the square is shaded?



11.  $ABCD$  is a square that is made up of two identical rectangles and two squares of area  $4\text{ cm}^2$  and  $16\text{ cm}^2$ . What is the area, in  $\text{cm}^2$ , of the square  $ABCD$ ?

*Hint: draw a diagram first.*