

There are 9 problems on this exam. Only those problems that say “explain” require explanations. Answers that require explanations will be given at most half credit without the required explanation. Be sure to follow all directions.

1. Determine the following for a 30-sided regular polygon. Explain how each answer is calculated. (3 points each)

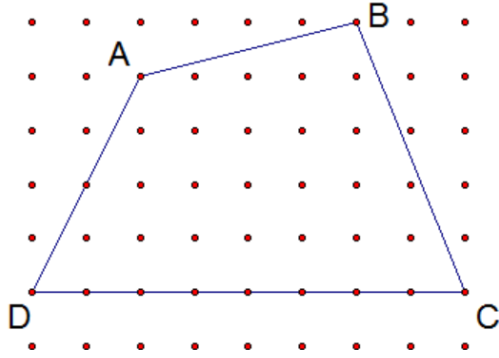
- (a) The measure of each interior angle
  
  
  
  
  
  
  
- (b) The measure of each exterior angle
  
  
  
  
  
  
  
- (c) The measure of each central angle
  
  
  
  
  
  
  
- (d) The number of exterior angles on the polygon
  
  
  
  
  
  
  
- (e) The sum of the measures of all of the exterior angles
  
  
  
  
  
  
  
- (f) The sum of the measures of the interior angles

In problems 2-5 determine the perimeter in centimeters and the area in square centimeters of the given polygon. **Watch for a change of units.** Show all calculations in detail to explain. If rounding is necessary, give answers correct to the nearest hundredth. The figures in problems 3-5 are not drawn to scale. (13 points each)

2. Quadrilateral ABCD shown below on centimeter dot paper

Perimeter: \_\_\_\_\_

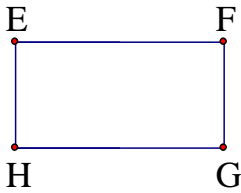
Area: \_\_\_\_\_



3. Rectangle EFGH

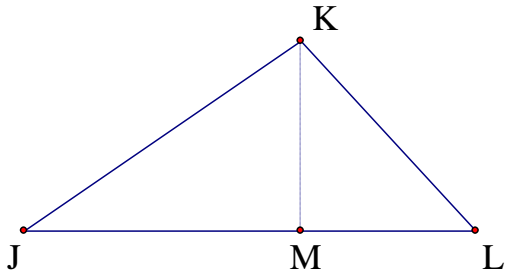
Perimeter: \_\_\_\_\_

Area: \_\_\_\_\_



$$m\overline{EF} = 24 \text{ mm}, m\overline{EG} = 26 \text{ mm}$$

4. Non-right Triangle JKL



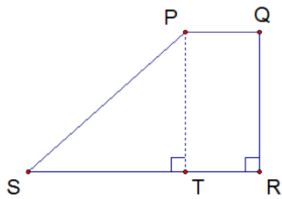
Perimeter: \_\_\_\_\_

Area: \_\_\_\_\_

$$m\overline{JM} = 72 \text{ cm}, m\overline{ML} = 40 \text{ cm}, m\overline{KM} = 30 \text{ cm}$$

$\overline{KM}$  is perpendicular to  $\overline{JL}$

5. Trapezoid PQRS



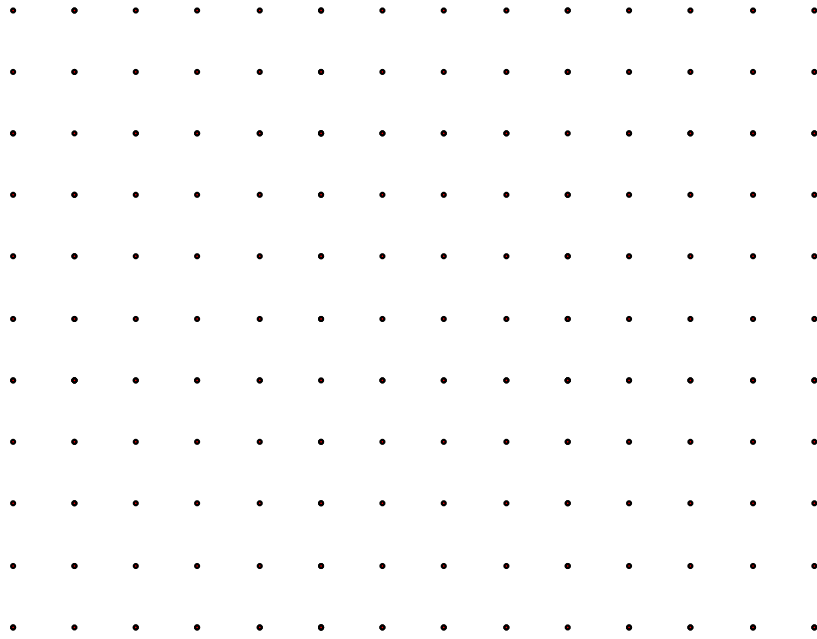
Perimeter: \_\_\_\_\_

Area: \_\_\_\_\_

$$m\overline{RS} = 5.4 \text{ dm}, m\overline{PQ} = 2.4 \text{ dm}, m\overline{PT} = 4 \text{ dm}$$

$\angle PTS$  and  $\angle QRT$  are right angles

6. Draw a lattice polygon on the dot paper below such that the sum of measures of the interior angles is equal to  $1800^\circ$ . (5 points)



7. Convert each of the following measurements to the specified units. (3 points each)

(a)  $1500 \text{ hm} = \underline{\hspace{2cm}} \text{ m}$

(b)  $4500 \text{ cm}^2 = \underline{\hspace{2cm}} \text{ m}^2$

(c)  $2500 \text{ dam}^2 = \underline{\hspace{2cm}} \text{ cm}^2$

(d)  $5 \text{ dm} = \underline{\hspace{2cm}} \text{ dam}$

8. Convert the repeating decimal  $0.2\overline{34}$  to a fraction in simplest form. Show all necessary steps to explain. (9 points)

9. Use all seven of your tangram pieces to make one of the two figures shown below. Trace around your pieces in the space below. (10 points)

