For each multiple choice question, please circle your answer.

1. The perimeter of a rectangle is 54 cm and the base length is twice the height. What is the area?
   a. 108 cm^2 b. 154 cm^2 c. 162 cm^2 d. 324 cm^2

2. The perimeter of a rectangle is 40 cm. If the width is 8 cm, what is the length?
   a. 12cm   b. 16 cm   c. 32 cm   d. 48 cm

3. What is the area, in square units, of parallelogram ABDE?
   a. 120   b. 136   c. 210   d. 240

4. What is the area, in square units, of ΔBCD?
   a. 60   b. 128   c. 120   d. cannot be determined

5. What is the area, in square units, of trapezoid ABCE?
   a. 240   b. 270   c. 352   d. 420

6. The perimeter of ABCE is:
   a. 63 units   b. 69 units   c. 75 units   d. cannot be determined

7. What is the measure of the base of a triangle with height of 20 cm and an area of 100 cm^2?
   a. 5 cm   b. 6 cm   c. 8 cm   d. 10 cm

8. To the nearest tenth, the circumference of a circle with a radius of 3 cm is:
   a. 9.4 cm   b. 18.8 cm   c. 28.3 cm   d. 31.4 cm

9. Given the following information about circles, determine the missing information.

a) C = 16 cm   b) r = $5\sqrt{2}$ cm   c) r = π cm   d) C = 10π cm
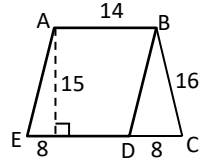
d = _____ (E)   d = _____   C = _____ (E)   r = _____

10. Find the area and perimeter of each of the shapes below. Give answers marked with an (E) as exact. Round all other answers to one decimal place.
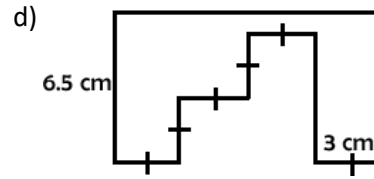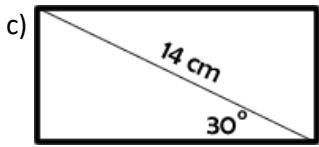
a)

b)

Area = _____ (E)   Area = _____ (E)

Perimeter = _____ (E)   Perimeter = _____ (E)

c)

d)
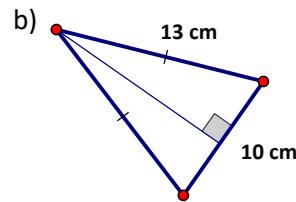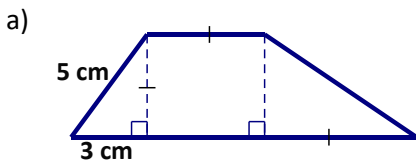
Area = _____ (E)

Area = _____ (E)

Perimeter = _____ (E)

Perimeter = _____ (E)

11. Find the missing measurement using the information provided. Leave answers marked with an (E) exact and round other answers to one decimal place.

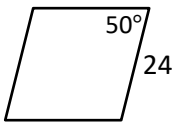a) A nonagon with a radius of 6 cm. Find the apothem.

b) A hexagon with a perimeter of 120 in. Find the apothem. (E)

c) A heptagon with a side length of 16 cm. Find the radius.

d) A pentagon with a radius of 10 cm. Find the side length.

12. Find the area of the following figures.

a) The figure below is a rhombus.

b) A heptagon has a side length of 10 cm.

c) Find the area of a hexagon that has a radius of 20 in.

d) Find the area of the shaded sector.