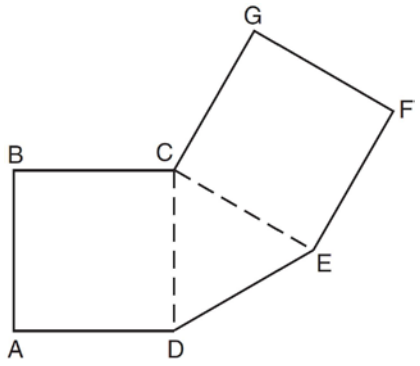
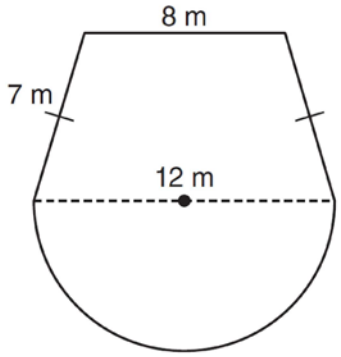
Name: _____

G.MG.A.3: Compositions of Polygons and Circles 1

1 As shown below, polygon *ABCGFED* consists of two squares, *ABCD* and *CGFE*, and an equilateral triangle *CED*. The length of $\overline{BC}$ is $\sqrt{3}$ cm. Determine the perimeter of polygon *ABCGFED* in radical form.



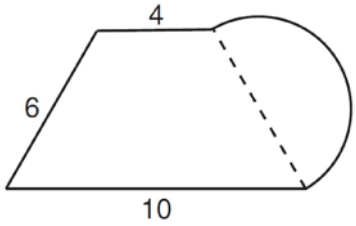
2 A garden is in the shape of an isosceles trapezoid and a semicircle, as shown in the diagram below. A fence will be put around the perimeter of the entire garden.



Which expression represents the length of fencing, in meters, that will be needed?

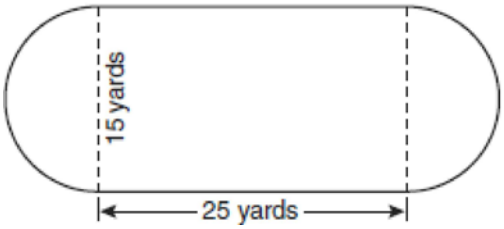
1) $22+6\pi$
2) $22+12\pi$
3) $15+6\pi$
4) $15+12\pi$

3 What is the perimeter of the figure shown below, which consists of an isosceles trapezoid and a semicircle?



1) $20+3\pi$
2) $20+6\pi$
3) $26+3\pi$
4) $26+6\pi$

4 A playground in a local community consists of a rectangle and two semicircles, as shown in the diagram below.



Which expression represents the amount of fencing, in yards, that would be needed to completely enclose the playground?

1) $15\pi+50$
2) $15\pi+80$
3) $30\pi+50$
4) $30\pi+80$

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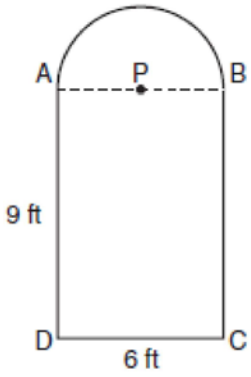
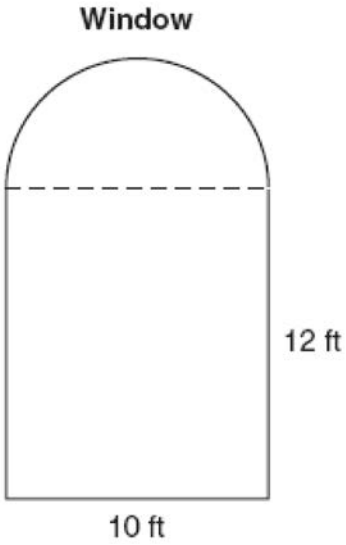
5 Serena's garden is a rectangle joined with a semicircle, as shown in the diagram below. Line segment *AB* is the diameter of semicircle *P*. Serena wants to put a fence around her garden.



Calculate the length of fence Serena needs to the *nearest tenth of a foot*.

6 A window is made up of a single piece of glass in the shape of a semicircle and a rectangle, as shown in the diagram below. Tess is decorating for a party and wants to put a string of lights all the way around the outside edge of the window.



To the *nearest foot*, what is the length of the string of lights that Tess will need to decorate the window?

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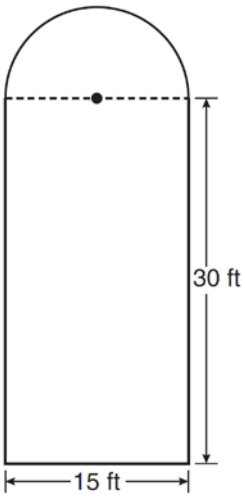
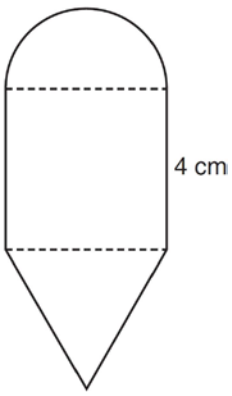
7 Ross is installing edging around his pool, which consists of a rectangle and a semicircle, as shown in the diagram below.

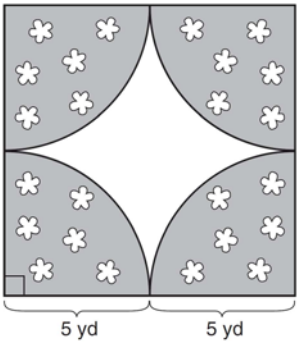


Determine the length of edging, to the *nearest tenth of a foot*, that Ross will need to go completely around the pool.

8 The diagram below consists of a square with a side of 4 cm, a semicircle on the top, and an equilateral triangle on the bottom. Find the perimeter of the figure to the *nearest tenth of a centimeter*.



9 A designer created a garden, as shown in the diagram below. The garden consists of four quarter-circles of equal size inside a square. The designer put a fence around both the inside and the outside of the garden.



Which expression represents the amount of fencing, in yards, that the designer used for the fence?

1) $40 + 10\pi$
2) $40 + 25\pi$
3) $100 + 10\pi$
4) $100 + 25\pi$

G.MG.A.3: Compositions of Polygons and Circles 1
Answer Section

1 ANS:
$7\sqrt{3}$

REF: 061532ia

2 ANS: 1
$7+8+7+\frac{12\pi}{2}=22+6\pi$

REF: 081128ia

3 ANS: 1
$4+6+10+\frac{6\pi}{2}=20+3\pi$

REF: 081228ia

4 ANS: 1 REF: 080924ia

5 ANS:
33.4. Serena needs 24 $(9+6+9)$ feet of fencing to surround the rectangular portion of the garden. The length of the fencing needed for the semicircular portion of the garden is $\frac{1}{2}\pi d = 3\pi \approx 9.4$ feet.

REF: fall0733ia

6 ANS:
50. $12+10+12+\frac{1}{2}(10\pi)\approx 50$

REF: 010931ia

7 ANS:
$30+15+30+\frac{15\pi}{2}\approx 98.6$

REF: 061433ia

8 ANS:
$16+2\pi\approx 22.3$

REF: 081432ia

9 ANS: 1
$4(5+5)+10\pi=40+10\pi$

REF: 081326ia