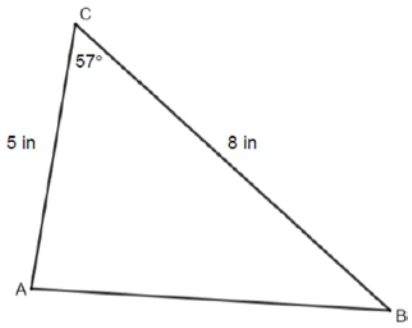
Name: _____

G.SRT.D.9: Using Trigonometry to Find Area 3

1 In non-right triangle ABC shown below, $AC = 5$ in, $BC = 8$ in, and $m\angle C = 57°$.



What is the area of $\triangle ABC$, to the *nearest tenth of a square inch*?
1) 10.9
2) 16.8
3) 21.8
4) 33.5

2 In $\triangle ABC$, $m\angle A = 120$, $b = 10$, and $c = 18$. What is the area of $\triangle ABC$ to the *nearest square inch*?
1) 52
2) 78
3) 90
4) 156

3 What is the best approximation for the area of a triangle with consecutive sides of 4 and 5 and an included angle of 59º?
1) 5.0
2) 8.6
3) 10.0
4) 17.1

4 In $\triangle RST$, $m\angle S = 135$, $r = 27$, and $t = 19$. What is the area of $\triangle RST$ to the *nearest tenth of a square unit*?
1) 90.7
2) 181.4
3) 256.5
4) 362.7

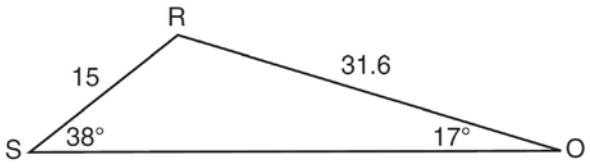
5 Two sides of a triangular-shaped sandbox measure 22 feet and 13 feet. If the angle between these two sides measures 55°, what is the area of the sandbox, to the *nearest square foot*?
1) 82
2) 117
3) 143
4) 234

6 In parallelogram $BFLO$, $OL = 3.8$, $LF = 7.4$, and $m\angle O = 126$. If diagonal $\overline{BL}$ is drawn, what is the area of $\triangle BLF$?
1) 11.4
2) 14.1
3) 22.7
4) 28.1

7 The area of triangle ABC is 42. If $AB = 8$ and $m\angle B = 61$, the length of $\overline{BC}$ is approximately
1) 5.1
2) 9.2
3) 12.0
4) 21.7

Name: _____

8 Determine the area, to the *nearest integer*, of $\triangle SRO$ shown below.

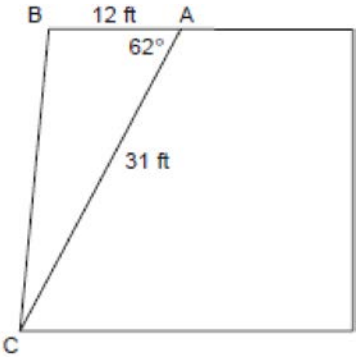


9 Find, to the *nearest tenth*, the area of $\triangle ABC$ if $a = 6$, $b = 10$, and $m\angle C = 18$.

10 In $\triangle DEF$, $m\angle D = 40$, $DE = 12$ meters, and $DF = 8$ meters. Find the area of $\triangle DEF$ to the *nearest tenth of a square meter*.

11 In $\triangle ABC$, $a = 12$, $b = 20.5$, and $m\angle C = 73$. Find the area of $\triangle ABC$, to the *nearest tenth*.

12 The accompanying diagram shows the floor plan for a kitchen. The owners plan to carpet all of the kitchen except the "work space," which is represented by scalene triangle *ABC*. Find the area of this work space to the *nearest tenth of a square foot.*



13 Two sides of a triangular-shaped pool measure 16 feet and 21 feet, and the included angle measures 58°. What is the area, to the *nearest tenth of a square foot*, of a nylon cover that would exactly cover the surface of the pool?

14 A landscape architect is designing a triangular garden to fit in the corner of a lot. The corner of the lot forms an angle of 70°, and the sides of the garden including this angle are to be 11 feet and 13 feet, respectively. Find, to the *nearest integer*, the number of square feet in the area of the garden.

G.SRT.D.9: Using Trigonometry to Find Area 3
Answer Section

1 ANS: 2

$K = \frac{1}{2}(8)(5)\sin 57 \approx 16.8$

REF: spr2403geo

2 ANS: 2

$K = \frac{1}{2}(10)(18)\sin 120 = 45\sqrt{3} \approx 78$

REF: fall0907a2

3 ANS: 2 REF: 010219siii

4 ANS: 2

$K = \frac{1}{2}(27)(19)\sin 135 \approx 181.4$

REF: 061602a2

5 ANS: 2

$\frac{1}{2}(22)(13)\sin 55 \approx 117$

REF: 061403a2

6 ANS: 1

$\frac{1}{2}(7.4)(3.8)\sin 126 \approx 11.4$

REF: 011218a2

7 ANS: 3

$42 = \frac{1}{2}(a)(8)\sin 61$

$42 \approx 3.5a$

$12 \approx a$

REF: 011316a2

8 ANS:

$\frac{1}{2} \cdot 15 \cdot 31.6 \sin 125 \approx 194$

REF: 011633a2

9 ANS:
9.3

REF: 088909siii

10 ANS:
30.9

REF: 080216siii

11 ANS:
$K = \frac{1}{2}(12)(20.5)\sin 73 \approx 117.6$

REF: 061022b

12 ANS:
164.2. $K = \frac{1}{2}(12)(31)\sin 62° \approx 164.2$

REF: 010225b

13 ANS:
142.5. $K = \frac{1}{2}(16)(21)\sin 58° \approx 142.5$

REF: 080226b

14 ANS:
67. $K = \frac{1}{2}(11)(13)\sin 70° \approx 67$

REF: 060525b