Name: _____

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

1 In $\triangle ABC$, $m\angle A = 120$, $b = 10$, and $c = 18$. What is the area of $\triangle ABC$ to the *nearest square inch*?

2 What is the best approximation for the area of a triangle with consecutive sides of 4 and 5 and an included angle of 59º?

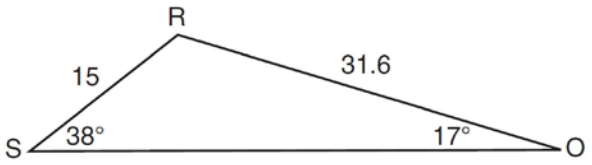
3 In $\triangle RST$, $m\angle S = 135$, $r = 27$, and $t = 19$. What is the area of $\triangle RST$ to the *nearest tenth of a square unit*?

4 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*?

5 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 $\triangle BLF$?

6 The area of triangle ABC is 42. If $AB = 8$ and $m\angle B = 61$, the length of $\overline{BC}$ is approximately

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

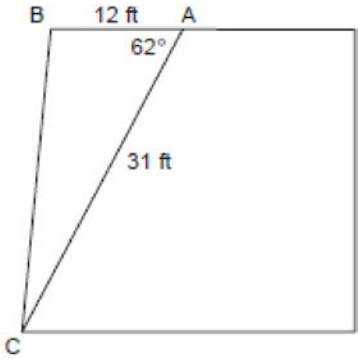


8 Find, to the *nearest tenth*, the area of $\triangle ABC$ if $a = 6$, $b = 10$, and $m\angle C = 18$.

9 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*.

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

11 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.*



12 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?

13 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.

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Answer Section

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

REF: fall0907a2

2 ANS:
8.6

REF: 010219siii

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

REF: 061602a2

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

REF: 061403a2

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

REF: 011218a2

6 ANS:
12.0
$42 = \frac{1}{2}(a)(8)\sin 61$

$42 \approx 3.5a$

$12 \approx a$

REF: 011316a2

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

REF: 011633a2

8 ANS:
9.3

REF: 088909siii

9 ANS:
30.9

REF: 080216siii

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

REF: 061022b

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

REF: 010225b

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

REF: 080226b

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

REF: 060525b