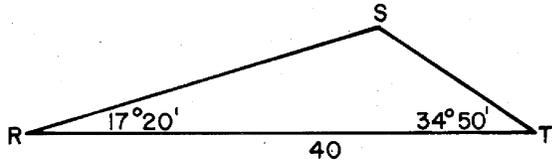


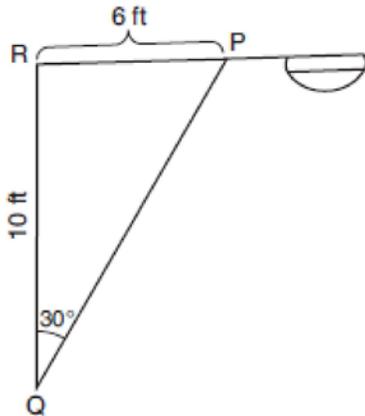
G.SRT.D.11: Law of Sines 4

- 1 In the accompanying diagram of triangle RST , $m\angle R = 17^\circ 20'$, $RT = 40$, and $m\angle T = 34^\circ 50'$.



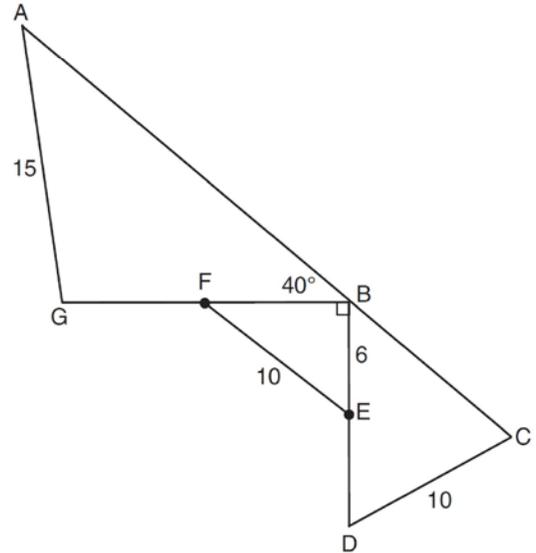
What is the length of \overline{RS} to the nearest integer?

- 2 In the accompanying diagram of a streetlight, the light is attached to a pole at R and supported by a brace, \overline{PQ} , $RQ = 10$ feet, $RP = 6$ feet, $\angle PRQ$ is an obtuse angle, and $m\angle PQR = 30$. Find the length of the brace, \overline{PQ} , to the nearest foot.



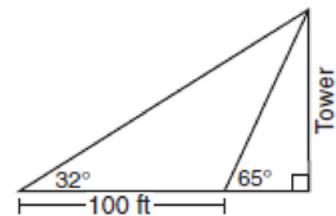
- 3 Carmen and Jamal are standing 5,280 feet apart on a straight, horizontal road. They observe a hot-air balloon between them directly above the road. The angle of elevation from Carmen is 60° and from Jamal is 75° . Draw a diagram to illustrate this situation and find the height of the balloon to the nearest foot.

- 4 Given: $DC = 10$, $AG = 15$, $BE = 6$, $FE = 10$, $m\angle ABG = 40$, $m\angle GBD = 90$, $m\angle C < 90$, $\overline{BE} \cong \overline{ED}$, and $\overline{GF} \cong \overline{FB}$



Find $m\angle A$ to the nearest tenth. Find BC to the nearest tenth.

- 5 The accompanying diagram shows the plans for a cell-phone tower that is to be built near a busy highway. Find the height of the tower, to the nearest foot.



G.SRT.D.11: Law of Sines 4
Answer Section

1 ANS:
29

REF: 088438siii

2 ANS:

$$\frac{10}{\sin P} = \frac{6}{\sin 30}$$

$$\sin P = \frac{10 \sin 30}{6}$$

$$P = \sin^{-1} \frac{10 \sin 30}{6}$$

$$P \approx 56^\circ$$

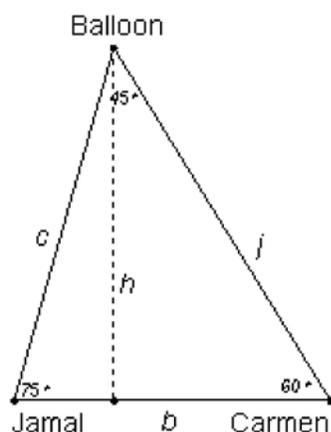
$$\frac{r}{\sin 94} = \frac{6}{\sin 30}$$

$$r = \frac{6 \sin 94}{\sin 30}$$

$$r \approx 12$$

REF: 060728b

3 ANS:



$$\frac{j}{\sin 75} = \frac{5280}{\sin 45} = \frac{c}{\sin 60}$$

$$6,246. j = \frac{5280 \sin 75}{\sin 45} \quad c = \frac{5280 \sin 60}{\sin 45}$$

$$j \approx 7212.6 \quad c \approx 6466.7$$

$$\sin 60 \approx \frac{h}{7212.6} \quad \sin 75 \approx \frac{h}{6466.7}$$

$$h \approx 6246 \quad h \approx 6246$$

REF: 080233b

4 ANS:

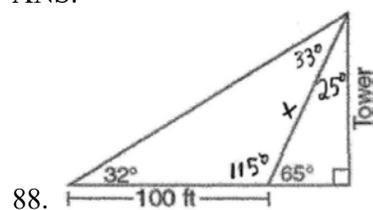
$$\frac{16}{\sin A} = \frac{15}{\sin 40} \quad \frac{10}{\sin 50} = \frac{12}{\sin C} \quad \frac{d}{\sin 63.2} = \frac{12}{\sin 66.8}$$

$$\sin A = \frac{16 \sin 40}{15} \quad \sin C = \frac{12 \sin 50}{10} \quad d = \frac{12 \sin 63.2}{\sin 66.8}$$

$$A \approx 43.3 \quad C \approx 66.8 \quad d \approx 11.7$$

REF: 011639a2

5 ANS:



$$\frac{x}{\sin 32} = \frac{100}{\sin 33}$$

$$x = \frac{100 \sin 32}{\sin 33} \quad \sin 65 \approx \frac{T}{97.3}$$

$$x \approx 97.3 \quad T \approx 88$$

REF: 080527b