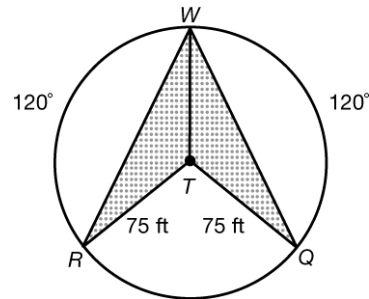


## Geometric Gardens Galore

Gardens often have interesting designs. Many of these designs have geometric properties.

1. This diagram shows a circular floral garden, which contains two triangular sections.



- a. Find the measures of  $\angle WTR$  and  $\angle WTQ$ . Explain your reasoning.

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- b. Explain how you know that  $\triangle WTR$  and  $\triangle WTQ$  are congruent.

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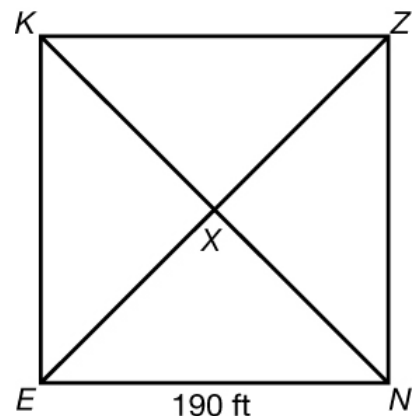
- c. Explain how you know that points  $R$ ,  $W$ , and  $Q$  are equally spaced around the circle.

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2. This diagram shows a square garden subdivided by two diagonal pathways linking opposite corners of the garden.



- a. To find the length of  $\overline{EZ}$ , what approach can you use and what information would you need?

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- b. Find  $EZ$  as a square root. Show your work.

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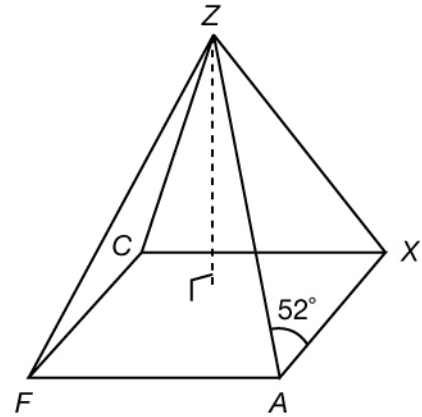


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- c. You can use triangle-congruence theorems or postulates to show that both pathways,  $\overline{EZ}$  and  $\overline{KN}$ , are equal in length. How else can you show this?

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3. In a public garden, there is a granite pyramid like the one shown here. The base of the figure is a square. The angles  $\angle ZAF$ ,  $\angle ZFA$ ,  $\angle ZFC$ ,  $\angle ZCF$ ,  $\angle ZCX$ ,  $\angle ZXC$ ,  $\angle ZXA$ , and  $\angle ZAX$  all measure  $52^\circ$ .



- a. Explain why  $\triangle ZXA$  and  $\triangle ZAF$  are congruent.

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- b. Explain why  $\triangle ZXA$ ,  $\triangle ZAF$ ,  $\triangle ZFC$ , and  $\triangle ZCX$ , are all congruent to one another.

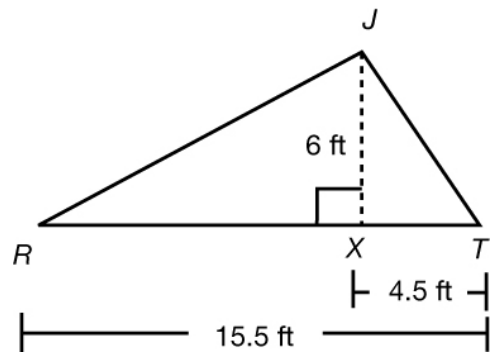
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4. This diagram shows a roof section for a greenhouse.

- a. Find  $JT$  by using the Pythagorean Theorem. Show your work.




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- a. To the nearest tenth of a foot, approximate  $JR$  by using the Pythagorean Theorem. Show your work.

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5. In two columns, show that the measure of  $\widehat{WZ}$  equals  $64^\circ$ .

Step	Reason

