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1. In $\triangle A B C$, the $m \angle C=90^{\circ}$. Which of the following statements is always true?
a. $\sin (A)=\cos (A)$
b. $\cos (A)=\sin (B)$
c. $\sin (A)=\tan (B)$
d. $\cos (B)=\tan (B)$
2. Find the geometric mean between 5 and 85 .
3. In $\triangle P Q R, m \angle Q=90^{\circ}, P Q=2 \sqrt{15}$ and $R Q=\sqrt{21}$.
a. Find PR in simplest radical form.
b. Find the measures of $\angle P$ and $\angle R$, to the nearest degree.
4. In Rhombus DEFG DE=13 and GE=12.
a. Find the length of diagonal DF.

b. Find the measure of $\angle D$ (of Rhombus DEFG), to the nearest degree.
5. A ladder 26 feet long leans against a building 10 feet above the ground. How far from the base of the building is the bottom of the ladder? What angle does the ladder make with the ground (to the nearest degree)?
6. Given the sides of a triangle, classify it as being acute, right or obtuse.

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\{2,6, \sqrt{40}\}
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7. Find the values of $x$ and $y$, in simplest radical form.
a.

b.

8. Find $\mathrm{a}, \mathrm{b}$, and c in simplest radical form.

9. If $C D=x+3, B D=x$ and $A D=12$, find the value of $x$.

10. If $E G=10$ and $G H=40$, find $F G$.

11. From the top of the Eiffel Tower, a jogger is spotted heading toward the tower. At 2 pm , the angle of depression of the jogger (A) was measured to be $37^{\circ}$. Four minutes later, (B), when measured again, the angle of depression had increased by $35^{\circ}$.

a. Find the distance that the jogger traveled to the nearest foot.
b. Use your answer to part (a) to find the average speed of the jogger to the nearest foot per minute.
12. A car travels along an inclined road, in the desert, at 55 mph for 6 hours, from point $A$ to point $B$.
a. If the horizontal distance of this section of the road is 327 miles, what is the angle of elevation of the road to the nearest hundredth of a degree?

b. Using the answer from part a, find the vertical distance (height) of the road, BC , to the nearest hundredth of a mile.
