

The Weekly Rigor

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“A mathematician is a machine for turning coffee into theorems.”

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15 Problems in Solving Right Triangles (Part 3 of 4)

(Part 1)

PROBLEMS

1. Given that $x = 3 \sin(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
2. Given that $x = \sin(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
3. Given that $x = \frac{1}{2} \sin(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
4. Given that $x^2 = 3 \sin^2(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
5. Given that $x = a \sin(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
6. Given that $x = 4 \tan(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
7. Given that $x = \tan(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
8. Given that $x = \sqrt{15} \tan(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.

9. Given that $2x = 3 \tan(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
10. Given that $x = a \tan(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
11. Given that $x = 5 \sec(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
12. Given that $x = \sec(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
13. Given that $5x = 2 \sec(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
14. Given that $x^2 = 2 \sec(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.
15. Given that $x = a \sec(\theta)$, find $\sin(\theta)$, $\cos(\theta)$, $\tan(\theta)$, $\sec(\theta)$, $\csc(\theta)$, $\cot(\theta)$ by constructing a right triangle consistent with the given information.

“Only he who never plays, never loses.”