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| **Chapter 4**: Trigonometric Functions | | | |
|  | Topics: Right triangle trigonometry, SOHCAHTOA, special right triangles, six trig functions, solving right triangles, application problems, convert degrees to radians, angles in standard position, coterminal angles, arc length, angular and linear speed, area of a sector, reference angles, unit circle, graphing all six trig functions, inverse trig functions, evaluating composition of trig functions, law of sines, ambiguous case, law of cosines, Heron’s Formula, area of a triangle given SAS | | |
| 1. | If , find the exact values of the five remaining trigonometric functions for the acute angle  45°  12 cm  *x* | | |
| 2. | Solve for x, exact answers only. | | |
| 5m  30°  60° | a. | b. | *x* |
| 3. | A 32 foot ladder leaning against the side of a house makes a angle with the ground. How far up the side of the house does the ladder reach? | | |
| 4. | A pre-calculus student is in Cape Canaveral watching the launching of the latest rocket ship. She is standing on the ground 450 feet away from the launch site. Assuming the rocket travels straight up, what will be the angle of elevation from the student to the rocket when the rocket hits 2000 feet off the ground? | | |
| 5. | Convert the following degree measurements into radians. Exact answers only, no decimal approximations. | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | a. |  | b. |  | c. |
| 6. Convert the following radian measurements into degrees. Your answer should not include . | | | | | |
|  | a. |  | b. |  | c. |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 7. | For each angle below: sketch the given angle in standard position, find its reference angle, find and draw one positive and one negative angle coterminal with the given angle. | | | | | | |
|  | a. | | | | b. | | |
| 8. | Given intercepted arc with a central angle of  and a radius of 4 cm. | | | | | | |
|  | a. Find the length of the intercepted arc | | | | b. Find the area of the sector of the circle | | |
| 9. | If you have a tire with a 30 inch diameter that rotates at 110 revolutions per minute, | | | | | | |
|  | a. Find the angular speed in radians per minute. | | | | b. Find the linear speed in miles per hour. | | |
| 10. | Let be a point on the terminal side of an angle  in standard position. Find the exact values of the six trigonometric functions of . | | | | | | |
| 11. | Let , where . Find the exact values of the remaining five trigonometric functions of | | | | | | |
| 12. | Find the exact value of each expression. | | | | | | |
|  | a. |  | b. |  | | c. |  |

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|  | a. |  | b. |  | | c. |  |
|  | For each of the following equations graph 2 cycles of the graph and find  a. period b. frequency c. phase shift  d. vertical shift  e. equations of asymptotes (tangent/cotangent) only | | | | | | |
|  | 13. |  | 14. |  | | 15. |  |
|  | 16. |  | 17. |  | | 18. |  |

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|  | 16. |  | 14. |  | 15. |  |