BEMIDJI AREA SCHOOLS
Outcomes in Mathematics - Trigonometry

The student will:

1. Know the six trigonometric functions defined for an angle in a right triangle.

2. Given the coordinates of a point on the terminal side of an angle in standard position in the xy-plane, find the values of the trigonometric functions.

3. Convert between degrees and radian measures.

4. Solve applied problems about triangles using the law of sines including the ambiguous case.

5. Solve applied problems about triangles using the law of cosines.

6. Graph the functions of the form $A\sin(Bt + C)$, $A\cos(Bt + C)$, and $A\tan(Bt + C)$ and know the meaning of the terms frequency, amplitude, phase shift and period.

7. Simplify trigonometric expressions using identities and verify simple trigonometric identities including $\sin^2 x + \cos^2 x = 1$, sum, difference, double angle, and half-angle formulas for sine and cosine.

8. Find all the solutions of a trigonometric equation on various intervals.

9. Know and be able to use the definitions of the inverse trigonometric functions and related methods to solve problems such as find $\cos(x)$ and $\tan(x)$ given the value of $\sin x$ and the quadrant containing the terminal side.

10. Compute values of the trigonometric functions.

11. Apply the trigonometric functions to solve right triangles.

12. Simplify trigonometric expressions using trigonometric identities.

13. Graph the sine and cosine functions.

14. Solve problems using radian measure of angles.

15. Solve problems involving oblique triangles.

16. Define vectors and basic vector operations geometrically.

17. Solve problems involving displacement, force and velocity using vectors.

18. Solve problems involving angles of depression and elevation.

19. Utilize different area formulas to find the area of triangles.

20. Apply the fundamental identities, reciprocal identities, co-function identities and Pythagorean identities in formal proofs.