Unit 5-Lesson 7-Solving Trigonometric Equations

To evaluate an expression means to _____ a given value in for a variable and _____

Evaluate the following:

1. $3x$ if $x = 6$ Solution:_____ 2. $-4x^2 - 7x + 2$ if $x = -6$ Solution:_____

Solving Sine, Cosine and Tangent Equations

- Sine, Cosine and Tangent are _____ functions that are related to triangles and angles
- We can evaluate _____, _____ or _____ just like any other expression
- When evaluating sine, cosine or tangent, we must remember that the value we substitute into the expression represents an _____.
- We have to check our mode to make sure the calculator knows what measure we are using!
- Always use _____mode! → Make sure Degree is highlighted!

For some angles, _____ will be _____.

This means there is no _____ at this value.

Evaluate the following:

1. $\sin(52^o)$ _____	2. $\cos(122^o)$ _____	3. $\tan(-76^o)$ _____
4. $\cos(45^o)$ _____	5. $\sin(30^o)$ _____	6. $\tan(90^o)$ _____

Solving Equations

- To solve an equation means to "_____" all the operations to get the variable by itself
- To "undo" an operation means to use the _____

The inverse operation of **addition** is _____

The inverse operation of **multiplication** is _____

The inverse operation of **squaring** is _____

Solve the following equations using inverse operations:

1. $3x + 5 = 14$ x=_____ 2. $2x^2 + 4 = 76$ x=_____

Solving Sine, Cosine and Tangent Equations

- We can solve equations involving _____, _____, and _____ just like any other equation!
- Inverse operations of sine is _____ cosine is _____ and of tangent _____
- For some values, _____and _____will not have a solution

Solve the following equations and express your answer in degrees:

1. $\sin(x) = 0.6$

x=_____

2. $\cos(x) = 1.5$

x=_____

3. $\tan(x) = -6.7$

x=_____

4. $\cos(x) = -0.87$

x=_____

5. $4 - \tan(x) = 4$

x=_____

6. $10=4-3\sin(x)$

x=_____

7. $-5 - 4\tan(x) = -1$

x=_____

8. $1 = -2 + 8\sin(x)$

x=_____

9. $1 - 3\cos(x) = 1$

x=_____

10. $-\frac{4}{3} = -1 + \frac{2}{3}\sin(x)$

x=_____

11. $-54 + \frac{2}{3}\cos(x) = -\frac{16}{3}$

x=_____

12. $\tan^2(x) - 3 = 0$

x=_____

Unit 5-Lesson 7 Practice-Solving Trigonometric Equations

1. $2\cos(x) + 1 = 0$

x=_____

2. $2\sin(2x) - \sqrt{3} = 0$

x=_____

3. $2\sin(x) - 1 = 0$

x=_____

4. $\tan(x) + 1 = 0$

x=_____

5. $5\tan(3x) - 5 = 0$

x=_____

6. $5\cos(x) + 7 = 3$

x=_____

7. $\sin(x) + \sqrt{2} = \frac{\sqrt{2}}{2}$

x=_____

8. $4\sin^2(x) - 1 = 0$

x=_____