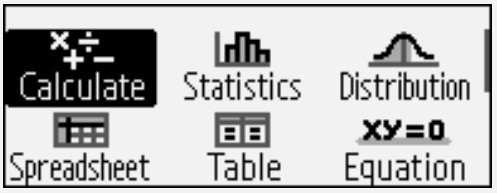
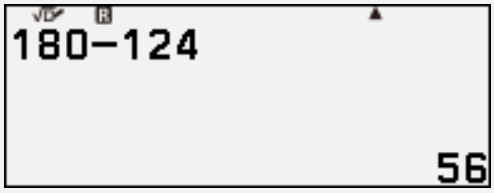
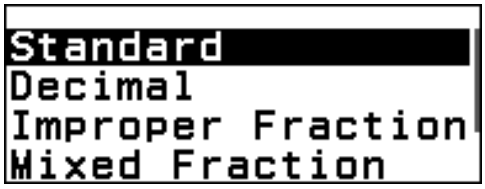
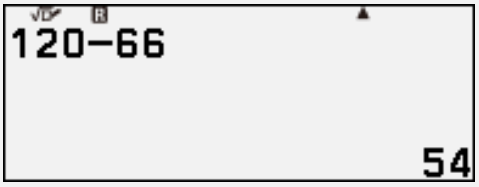
Unit 7: Lesson 5 – Using Equations to Solve Unknown Angles

Activity 5.3: Calculate the Measure

Skill: Use the Calculate app to assist solving equations involving angle relationships.

Activity Summary:
This activity has students create equations based upon different angle relationships. The equations are then solved to find the measure of the missing angle. The Calculate app on the calculator can assist in solving equations algebraically. The Ans Key uses the prior answer in a new calculation.

1. Press ⌂ **– Home** and then use the **arrow keys** to highlight the **Calculate app** in the top left corner.	
2. Press either OK or EXE to open the **Calculate app**.	
3. In the first drawing, the angles labeled ***w*°** and **124°** are **linear pairs**. Their sum is **180°**. To find the **measure of *w***, **subtract 124°** from **180°**. Type 1 8 0 − 1 2 4 followed by either OK or EXE. The **measure** of **angle *w*** is **56°**.	
4. In the second diagram, there are three **adjacent angles**; **52°**, ***b*°**, and **23°**; which form a **straight line**. The **sum** of these three angles is **180°**. To solve for ***b***, first find the sum of the other two angles. Enter 5 2 + 2 3 on the **keypad** and press either OK or EXE.	
5. Subtract this answer from **180°** to find the measure of ***b***. Enter 1 8 0 − Ans followed by either OK or EXE. The **measure of angle *b*** is **105°**.	

6. In the third diagram, there are two **adjacent angles** along with a **vertical angle** which **combined** would form a **right angle**. The equation $2x + 23 = 90$ can be used to solve for the value of ***x***. First find **90 – 23**. The remaining, **67**, is equal to **2*x***.	
7. If an **operation** is **entered first** in an **expression**, the calculator will automatically insert **Ans** as the **first value**. To **divide** the **prior answer**, **67**, by **2**, type ÷ ② followed by either OK or EXE.	
8. The **result** is shown as an **improper fraction**. Press the **Format Key**, FORMAT, to view **conversion** options.	
9. Press the **down arrow** to highlight **Decimal** and press either OK or EXE. The display now shows the result as an **equivalent decimal** of **33.5**. The measure of each angle labeled ***x*°** is **33.5°**.	
10. To display this answer as an equivalent mixed fraction, press the **Format Key**, FORMAT, use the **arrow keys** to highlight **Mixed Fraction** and press either OK or EXE.	
11. The last diagram has **three adjacent angles** which are **vertical** to an **angle** of **120°**. The equation $2m + 66 = 120$ can be solved to find the value of the missing angles. The first step is to find **120 – 66**.	
12. To **divide** the **prior answer**, **54**, by **2**, type ÷ ② followed by either OK or EXE. Each angle labeled ***m*°** has a measure of **27°**.