Piston Displacement Lesson 2 Quiz **Name** Key

Solve the following using the cubic inch displacement formula and convert to the indicated unit. Show work and use appropriate units.

1. An V-8 engine block has a bore of 4.25 inches, a stroke of 3. 5 inches. Calculate the cubic inch displacement.

$CID = .7854 \times 4.25^2 \times 3.5 \times 8$

$CID = 397$ cubic inches

$397\ in^3 \times \frac{16.39\ cc}{1\ in^3} = 6507\ cc$

$6507\ cc \times \frac{1\ L}{1000\ cc} = \boxed{6.5\ L}$

2. An V-6 engine block has a bore of 3.125 inches, a stroke of 4.875 inches. Calculate the cubic inch displacement.

$CID = .7854 \times 3.125^2 \times 4.875 \times 6$

$CID = 224$ cubic inches

$224\ in^3 \times \frac{16.39\ cc}{1\ in^3} = 3671\ cc$

$3671\ cc \times \frac{1\ L}{1000\ cc} = \boxed{3.7\ L}$

3. An V-8 engine block has a bore of 4.050 inches, a stroke of 3.25 inches. Calculate the cubic inch displacement.

$CID = .7854 \times 4.050^2 \times 3.25 \times 8$

$CID = 335$ cubic inches

$335\ in^3 \times \frac{16.39\ cc}{1\ in^3} = 5491\ cc$

$5491\ cc \times \frac{1\ L}{1000\ cc} = \boxed{5.5\ L}$

4. Convert a 3 Liter engine to cubic inches.

$3\ L \times \frac{1000\ cc}{1\ L} \times \frac{1\ in^3}{16.39\ cc} = \boxed{183\ \text{cubic inches}}$

5. Convert a 2.5 Liter engine to cubic inches.

$2.5\ L \times \frac{1000\ cc}{1\ L} \times \frac{1\ in^3}{16.39\ cc} = \boxed{153\ \text{cubic inches}}$