

## ANSWER KEY TO CHALLENGE SHEET

### GENERAL ENGINE DIAGNOSIS CHALLENGE 1

**Customer's Concern:** There is a big cloud of smoke coming out of the exhaust as I drive down the road.

**Customer Vehicle:** Mercury Montego.

#### Possible Causes of This Challenge:

1. Crankcase overfilled with oil.
2. Worn valve guides or damaged seals.
3. Blown head gasket.
4. Broken piston rings.
5. Scored cylinder walls.

#### Safety First Practices to Follow:

1. Do not create any sparks when working around gasoline.
2. Connect vehicle exhaust system to a vent hose in a closed shop.
3. Watch out for moving or hot parts when making under-hood inspection.
4. Use manufacturer's instructions when using test equipment.

#### Tools and Equipment Required:

1. Vehicle service information and hand tools.
2. Compressor tester.
3. Cylinder leakage tester.
4. Engine diagnostic machine or oscilloscope.
5. Hand-held vacuum pump and gauge.