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# Hot Wheels

As an automobile service technician, you know that customers sometimes think their cars are in need of repair when they don't handle well on the road. However, attention to simple preventive maintenance is often the answer to their problem. You know that a car will handle better and tires last longer if tire pressure is monitored and adjusted as needed. In fact, if the air pressure in a car's tires is not correct, a dangerous situation could result.

## Time and the Life of a Tire

Last week when Jane Hurley brought her car in for a tune up, you noticed that her tires were seriously underinflated. Jane couldn't remember the last time she checked her tire pressure. You explained that tires lose pressure over time.

A. On an average, tires lose one pound of pressure per month. The manufacturer of Jane's tires recommends that the tires be inflated to 32 pounds of pressure per square inch (PSI). When you measured the pressure of the tires, one tire was dangerously low at 26 PSI. Determine the pounds of pressure lost and estimate how much time had passed since Jane had her tire pressure checked last.

1. _____ – _____ = _____
   Recommended PSI  Measured PSI  No. of PSI lost

2. Estimated number of months since Jane's last tire check _____

B. You explained to Jane that she can expect her tires to last for 30,000 miles if she keeps them properly inflated. Tires lose 10 percent of their expected life for every 10 percent they are under inflated. How much life had Jane's tire lost?

1. What percent of the recommended PSI is Jane's low tire currently inflated?

   _____ / _____ = _____ = _____%
   Measured PSI  Recommended PSI  Decimal  Percentage inflated (Round to two places)

2. What percent is Jane's low tire currently under inflated?

   100% – _____ = _____
   Full inflation  Current % inflated  Percent under inflated

3. Calculate how many miles of the expected life of the tire will be lost due to the percent of under inflation.

| _____ | X | _____ | = | _____ |
|---|---|---|---|---|
| Expected life of tire (mi.) | | Percent under inflated | | Miles of tire life lost |

## Time and Temperature

Bob Dolan spent last summer in Florida and drove home to New York the first week of September. It's now the end of December, and he brought his car in for a check up because it pulls to the left when he brakes.

Because Bob has radial tires, it's hard for him to judge the tires' inflation by looking. Bob says he was careful to adjust his tire pressure to the manufacturer's recommended 34 PSI before he left Florida. You ask what the temperature was when he left Florida. He remembers it being a balmy 85 degrees; it's now 45 degrees in New York.

Tires lose about one PSI for every 10-degree temperature drop; in addition to the PSI they lose over time. What total PSI loss do you discover when you measure Bob's tire pressure?

A. It's now December and Bob last adjusted his tire pressure in September. Approximately how much PSI has each tire lost to time?

| _____ | x | _____ | = | _____ |
|---|---|---|---|---|
| Avg. PSI loss per month (Part I A) | | Months since adjustment | | PSI loss to time |

B. How many PSI were lost due to the temperature differences in Florida and New York.

1. _____ – _____ = _____
   Fl Temp. NY Temp. Temp. difference

2. _____ / 10 = _____
   Temp. difference PSI loss to temp. difference

C. Calculate the current PSI of Bob's tires.

| _____ | – | _____ | – | _____ | = | _____ |
|---|---|---|---|---|---|---|
| Recommended PSI | | PSI lost to time | | PSI lost to temp. change | | Current PSI |