

KEY

For this homework assignment, there is some gray area. If a student claims that something is a variable and can argue convincingly, let him have it. But listen carefully to the answers they give. If the item is, for example, #12, football, and the student says it can be a variable because it could be a big or small football, explain that the *size* of a football is a variable, but *football* itself is not.

LESSON 4: INTRODUCTION TO THE VARIABLE

DEFINITION: A **Variable** is a symbol or word that may represent some thing or idea that can have a value associated with it. For instance:

EXAMPLE: The temperature outside is a variable since there can be a value attributed to temperature. It could be 20 degrees or it could be 100 degrees.

EXAMPLE: The batting average of a baseball player is also a variable since a player could have an average of 300 or an average of 230.

EXAMPLE: A tree is not a variable. There is no real sense in which we say that a tree is equal to 2 or 3.14.

▶▶ **PROBLEM SET:** For each of the following, determine whether or not the word or symbol is a variable. For each one you determine is a variable, what are some of the values you can attribute to this variable? (See examples above.)

1. The speed of a car

Yes, 1 to 100 MPH or so

2. Car

No. Students may argue that you can attribute a value, e.g. Chevy. Discuss and decide as a class.

3. The height of a tree

Yes, can be any height

4. How much I like class

Yes, established

5. Broom

No

6. Happy

Sure, very!

7. My Age

Yes, 14

8. How fast my heart beats

Yes, how many beats a minute

9. The size of my foot

Yes, size 8

10. X

Yes, anything

11. The height at which a plane flies

Yes, maybe 27,000 feet

12. Football

No

13. The score in a basketball game

Yes, 78 to 112

14. Flute

No

15. The loudness of a note

Yes, 3 on the volume knob, or loud, soft, etc

16. Red

No or yes, worth a discussion

17. The darkness of a painting

Yes, somber, bright, etc

18. The number of figures in a drawing

Yes, 0, 3, 45, ...

19. My favorite movie

Hmmm... Discuss

20. The length of a football field

No. 100 yards. Oops, did someone say South American or European football? well, maybe the length of a football field does vary depending on the kind of football

21. The weight of a guitar

Yes, who knows but it could vary quite a bit.

22. The cost of tea in China

Yes, what kind of tea?

23. The size of the population

Yes, changes every second

24. The number of steps in a dance routine

Yes. How many steps did their dances have?

25. Fun

Sure, lots of fun or not much