#### Instructions

### Take a look at the focus words below. Think about what each word means and how it is used. Then answer the questions after each word.

**Remember:** You ***don’t*** have to understand every word in the example sentences.

**Focus words**: develop, measure, obtain, strain, vector

**I. develop**

1. His goal was to **develop** a universal algebra for reasoning.
2. Rolls-Royce had to **develop** a special age-hardened aluminum alloy (RR58) which would not over-age during the lifetime of the Concorde supersonic airplane.
3. With supervised data mining, data miners **develop** a model prior to the analysis and then apply statistical techniques to the data to estimate parameters of the model.
4. **Develop** a suitable set of dimensionless parameters for this problem.
5. The objective of this chapter is to **develop** the analysis of member forces of statically determinate plane and space trusses.
6. To **develop** the method of least work, let us consider a statically indeterminate beam with unyielding supports subjected to an external load.

What do you think **develop** means? Use a dictionary to help.

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Look at the sentences below. Do you think **develop** is being used correctly?

Circle your answer.

1. Their goal was to **develop** and enumerate the different compounds made possible by joining atoms of various substances.

correct incorrect

1. His idea was to **develop** for a new plan to improve his work.

correct incorrect

1. **Develop** a computer program for calculating the density of an ideal gas when the gas pressure in pascals.

correct incorrect

1. Later in the text we **develop** about the laws that govern other types of waves.

correct incorrect

1. The basic idea is to **develop** a set of simple operations that we can apply to a system of equations to rearrange them algebraically.

correct incorrect

1. Can you help me with **develop** a good idea for my new project?

correct incorrect

Write a sentence that uses the word **develop**. Use the examples above to guide you.

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**II. measure**

1. How would you attempt to **measure** the yield strength of a ceramic?
2. To **measure** the amount of work that an algorithm requires, we generally make a rough count of the number of basic operations.
3. Length, area, and volume **measure** the spatial extension of an object.
4. The most commonly used **measure** of a gasoline's ability to burn without knocking is its octane number.
5. For low speed flow over a flat plate, one **measure** of the boundary layer is the resulting thickness.
6. It is a **measure** of the internal friction that arises when velocity gradients are present in the fluid.
7. We intend to apply a force to the body and **measure** its acceleration.
8. Sound waves can be used to **measure** the speed at which blood flows in arteries and veins.

What part of speech is the word **measure** in examples 1, 2, 3, 7 and 8?

What part of speech is the word **measure** in examples 4, 5 and 6?

What do you think the word **measure** means? Use a dictionary to help.

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Look at the sentences below. Do you think **measure** is being used correctly?

Circle your answer.

1. It is much easier to **measure** the force required to break a beam in bending (Figure 16.1).

correct incorrect

1. An experiment is being designed to **measure** aerodynamic forces on a building.

correct incorrect

1. First, you need to **measure** about the length of the object.

correct incorrect

1. Density is a **measure** of the mass per unit volume.

correct incorrect

1. Relative humidity is a **measure** of air's ability to absorb more water.

correct incorrect

1. One way is to compress the material with a known compressive force, and **measure** the strain.

correct incorrect

Write a sentence that uses the word **measure**. Use the examples above to guide you.

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**III. obtain**

1. For example, one common task for a function is to **obtain** an input value from the user and set the value of an argument variable.
2. How can we **obtain** the sum of ExtendedPrice for items managed by the Water Sports department?
3. By substituting Eqs. (13.1) and (13.3) into Eq. (13.2), we **obtain** the compatibility equation which can be solved to express the redundant C.
4. Once that has been done, it then uses a SELECT to **obtain** a value for the WorkID value.
5. If we can **obtain** the unknown forces using the above equations of equilibrium, we call the problem as statically determinate.
6. To **obtain** an auxiliary view, the observer changes position with respect to the object, as shown by the arrow in Fig. 9.1 a.
7. From this method we **obtain** information about the flow in terms of what happens at fixed points in space as the fluid flows through those points.

What do you think the word **obtain** means? Use a dictionary to help.

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Look at the sentences below. Do you think **obtain** is being used correctly?

Circle your answer.

1. If you have not done these things, you should **obtain** a copy of Microsoft Access 2007.

correct incorrect

1. We can **obtain** a set of mathematical laws in the form of equations that relate physical variables.

correct incorrect

1. Contact your power company and **obtain** with information on the thermodynamic aspects of their most recently built power plant.

correct incorrect

1. Suppose we want to **obtain** '"U instead of \*"U as the end product of a diffusion process.

correct incorrect

1. Calculate the total virtual work resulting for **obtain** an equation for the unknown force.

correct incorrect

1. **Obtain** an expression for the redox potential of an electrolyte.

correct incorrect

Write a sentence that uses the word **obtain**. Use the examples above to guide you.

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**IV. strain**

1. Determine the strength coefficient and the **strain**-hardening exponent for this metal.
2. Equation (14.12) indicates symbolically that the **strain** energy for the beam is expressed as a function of the known external load M.
3. These characteristics are shown in the figure by the **stress-**strain curves for three grades of rubber.
4. Thus we get the **strain** components as in Equation (10.30).
5. The stress-**strain** diagram is assumed to be independent of the size of the specimen and gauge length.
6. For brittle materials, a stress-**strain** curve carried out in a tension test will differ from the corresponding curve carried out as a compression test.

What do you think the word **strain** means? Use a dictionary to help.

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Look at the sentences below. Do you think **strain** is being used correctly?

Circle your answer.

1. Ceramic materials are rigid and brittle, exhibiting a stress-**strain** behavior best characterized as perfectly elastic.

correct incorrect

1. Therefore we get the **strain** at components as shown in Diagram 3.1b.

correct incorrect

1. Use the **straining**-stressing curve to find the answer.

correct incorrect

1. An expression for the **strain** energy can be written in terms of the known load.

correct incorrect

1. The equation about **strain** energy with the problem is shown in Figure 7.23.

correct incorrect

1. The stress-**strain** diagram for different materials differs widely.

correct incorrect

Write a sentence that uses the word **strain**. Use the examples above to guide you.

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**V. vector**

1. Similarly, a **vector** field in 3-space is a function that associates with each point P in 3-space a unique **vector**.
2. So, it is usually not possible to describe a vector field completely by drawing finitely many **vectors.**
3. The **vector** field in part (a) might describe the velocity of the current in a stream at various depths.
4. For each body, find the **vector** sum of all the forces.
5. In handwritten work, a **vector** is generally indicated with an overbar or underbar-F or E.
6. In diagrams, a **vector** is represented by an arrow to show its direction.

What do you think the word **vector** means? Use a dictionary to help.

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In examples 1 and 2, the word **vector** is used twice. Is there a difference in how **vector** is used?

What about in examples 3 and 4 compared to examples 5 and 6? Is there a difference in how **vector** is used?

Look at the sentences below. Do you think **vector** is being used correctly?

Circle your answer.

1. Calculate for **vector** field about the following equation.

correct incorrect

1. The **vector** field in part (b) might describe the velocity at points on a rotating wheel.

correct incorrect

1. Express the moment as a **vector**.

correct incorrect

1. Force is also a **vector** quantity.

correct incorrect

1. Velocity is a **vector** quantity, but speed is not.

correct incorrect

1. Look at the diagram below. What is the **vector** about sum of the forces?

correct incorrect

Write a sentence that uses the word **vector**. Use the examples above to guide you.

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**VI.** Choose **three** of the focus words and use them in a short paragraph.

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**VII.** Look at the example sentences.What words come before and after each of the focus words?Put each word in a suitable category.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| before the focus word | develop | measure | measure | obtain | strain | vector |
| noun |  |  |  |  |  |  |
| verb |  |  |  |  |  |  |
| preposition | **to** |  |  |  |  |  |
| article |  |  |  |  |  |  |
| other word types |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| after the focus word | develop | measure | measure | obtain | strain | vector |
| noun |  |  |  |  |  |  |
| verb |  |  |  |  |  |  |
| preposition | **a** |  |  |  |  |  |
| other word types |  |  |  |  |  |  |

**Are there any patterns that you notice?** *Click here to see more examples of the focus words in use.*

**What does the pattern tell you about how the focus word is used?**

**VIII.** Do the focus words have any other parts of speech? Complete the table. Not all focus words have all parts of speech that are shown in the table.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | develop | measure | measure | obtain | strain | vector |
| noun |  | **measure** |  |  |  |  |
| verb |  |  | **measure** |  |  |  |
| adjective |  |  |  |  |  |  |
| adverb |  |  |  |  |  |  |