Preview Assessment: Reading Assignment #3

Name	Reading Assignment #3
Instructions	This reading assignment is not timed, so you may read the material (pp. 387-391) in Foundations of Engineering by Holtzapple and Reece and answer the questions as you read. Questions are multiple choice. You may save the assignment and return to it later by clicking on the save button at the bottom of the assignment only (The save buttons next to each question do not work. Only the save button next to the submit button at the bottom of the assignment works). You may only submit this reading assignment test once.
Multiple Attempts	Not allowed. This Test can only be taken once.
Force Completion	This Test can be saved and resumed later.

Question Completion Status:

Question 1 **0.5 points** Save

What is the basic relationship that all static particles must satisfy?

- They must not be moving.
- The sum of the force vectors applied to the particle must be zero.
- The sum of the moments applied to the particle must be zero.
- Thier dimensions must not change.

Question 2 **0.5 points** Save

What do you suppose happens to a particle when this relationship is not satisfied? (Hint: think cannonball)

- The particle will not move.
- The particle will accelerate.
- The particle will maintain the same dimensions it had before.
- The particle will go to Penland for some ice cream.

Question 3 **0.5 points** Save

In equation 15-2, three of the symbols give the magnitude of the force in x, y, and z and three give the directions in which the force is acting. Identify which three symbols give the magnitudes of the force and which are the unit vectors (magnitude of 1) that indicate only the direction of action.

- Unit vectors: F_x , F_y, F_z

  Magnitude of force components: F
- Unit vectors: F

Magnitude of force components: F_x , F_y, F_z

- Unit vectors: i, j, k

Magnitude of force components: F

- Unit vectors: i, j, k

Magnitude of force components: F_x , F_y, F_z

Question 4 **0.5 points** Save

Some quantities have just a magnitude and some have a magnitude and direction. Which of the following has a magnitude and direction. Note the answer to this question is not in the book. Just think.

- Temperature
- Time
- Force
- Density

Question 5 **0.5 points** Save

If the sum of the forces acting at a point must be equal to zero for a static problem (otherwise it becomes a dynamics problem), what then must be true about the forces in the x, y, and z directions?

- The forces must be zero.
- They must also be static.
- The sum of the forces in at least one direction must be zero.
- The sum of the forces in each direction must be zero.

Question 6 **0.5 points** Save

What is a free body diagram?

- A free body diagram is a drawing with each of the system components that shows how they affect each other.
- A free body diagram is a figure that represents the system.
- A free body diagram is a mathematical modeling of the system.
- A free body diagram is a drawing of the system with forces acting on it.

Question 7 **0.5 points** Save

If $F_1 = -2a\mathbf{i} + 4b\mathbf{j} = F_x\mathbf{i} + F_y\mathbf{j}$, what are the values for F_x and F_y in terms of numbers and scale constants a and b?

- $F_x = -2a$

$F_y = 2b$

- $F_x = -3a$

  $F_y = -3b$
- $F_x = -2a$

  $F_y = 4b$
- $F_x = -4a$

  $F_y = 2b$

Question 8 **0.5 points** Save

How does the problem indicated in Figure 15.2 differ from the one in Figure 15.3?

- Figure 15.2 only deals with forces in the x and y directions rather than x, y, and z.
- Figure 15.3 only deals with forces in the x and y directions rather than x, y, and z.
- Figure 15.2 takes into account the force of gravity whereas Figure 15.3 does not.
- Figure 15.3 takes into account the force of gravity whereas Figure 15.2 does not.

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