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# Assessment Questions

## Module 1.1: Measuring and Comparing Throws

1. What is the correct length in both centimeters and inches of the following line?



- a. 4 inches or 10 cm  
 b. 2 inches or 10 cm  
 c. 4 inches or 15 cm  
 d. 2 inches or 10 cm
2. Sean, Alyssa and Diego each throw the football and measure their throws in inches. Sean threw the ball 272 in; Alyssa threw 250 in; and Diego threw 234 in. Which of the following expressions lists the throws in order from longest to shortest?
- a. Diego > Alyssa > Sean  
 b. Sean > Diego > Alyssa  
 c. Sean > Alyssa > Diego  
 d. Alyssa < Sean < Deigo



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## **Module 2.1: Technological Advancements and Improved QB Play**

1. Which of the following is evidence that supports the claim, a longer arm increases the average distance of a quarterback's throw?

a.

	Player 1	Player 2
Arm length	34 in	35 in
Average pass distance	65 yards	50 yards

b.

	Player 1	Player 2
Pass completion	75%	60%
Average pass distance	65 yards	50 yards

c.

	Player 1	Player 2
Arm length	30 in	35 in
Average pass distance	75%	60%

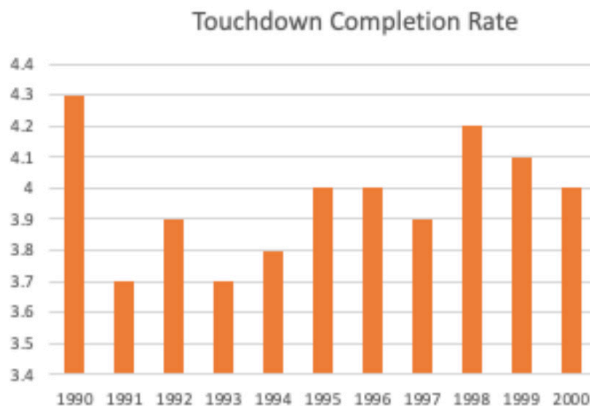
d.

	Player 1	Player 2
Arm length	30 in	35 in
Average pass distance	55 yards	65 yards

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2. Using the bar graph, what year did the NFL have the highest pass completion rate?



- a. 1990
- b. 1993
- c. 1998
- d. 2000

## Module 3.1: The Advancement of In-Game Communication

1. Criteria or Constraint: Each offensive and defensive team is permitted no more than one player on the field with a speaker in his helmet.
2. Criteria or Constraint: The radio must be wireless.
3. Why is it important to establish clear criteria and constraints for an engineering design?
  - a. Clear criteria makes it easier to come up with ideas to solve the problem.
  - b. Criteria and constraints help narrow the design to fix the problem.
  - c. Constraints help the engineer make more of a profit.
  - d. Criteria and constraints ensure a working prototype.

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## **Module 4.1: The Evolution of a Football Helmet**

1. In football and other sports, players wear helmets and other protective equipment. Which helmet would provide the best protection?



2. True or False: The brain controls and collects information from all five senses.
3. True or False: The brain cannot be injured because of the skull.

## **Module 5.1: Measuring Football Distances**

1. Solve the following: A running back runs the ball 9 yards. How many inches did the ball travel? (3 feet x 9 yards x 12 inches)
- 27 in
  - 36 in
  - 324 in
  - 1296 in



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2. Which of the following is the best equation to calculate the number of millimeters in a meter?
  - a. # of meters x 10 centimeters x 10 millimeters
  - b. # of millimeters = # of meters times 3 feet time 12 inches
  - c. # of meters x 100 centimeters x 10 millimeters
  - d. # of millimeters = # of meters times 10 millimeters

## **Module 6.1: Extra Point vs Two-Point Conversion**

1. An extra point kick has a greater chance of success than a two-point conversion. Which mathematical expression is correct based on this information?
  - a. Two-point Conversion > Extra Point
  - b. Two-point conversion < Extra Point
  - c. Extra Point < Two-point conversion
  - d. Extra Point > Two-point conversion
2. If the Cardinals have a  $\frac{3}{4}$  chance of making a two-point conversion and  $\frac{5}{10}$  chance of making an extra point kick, which should the coach select?
  - a. Extra Point
  - b. Two-Point Conversion

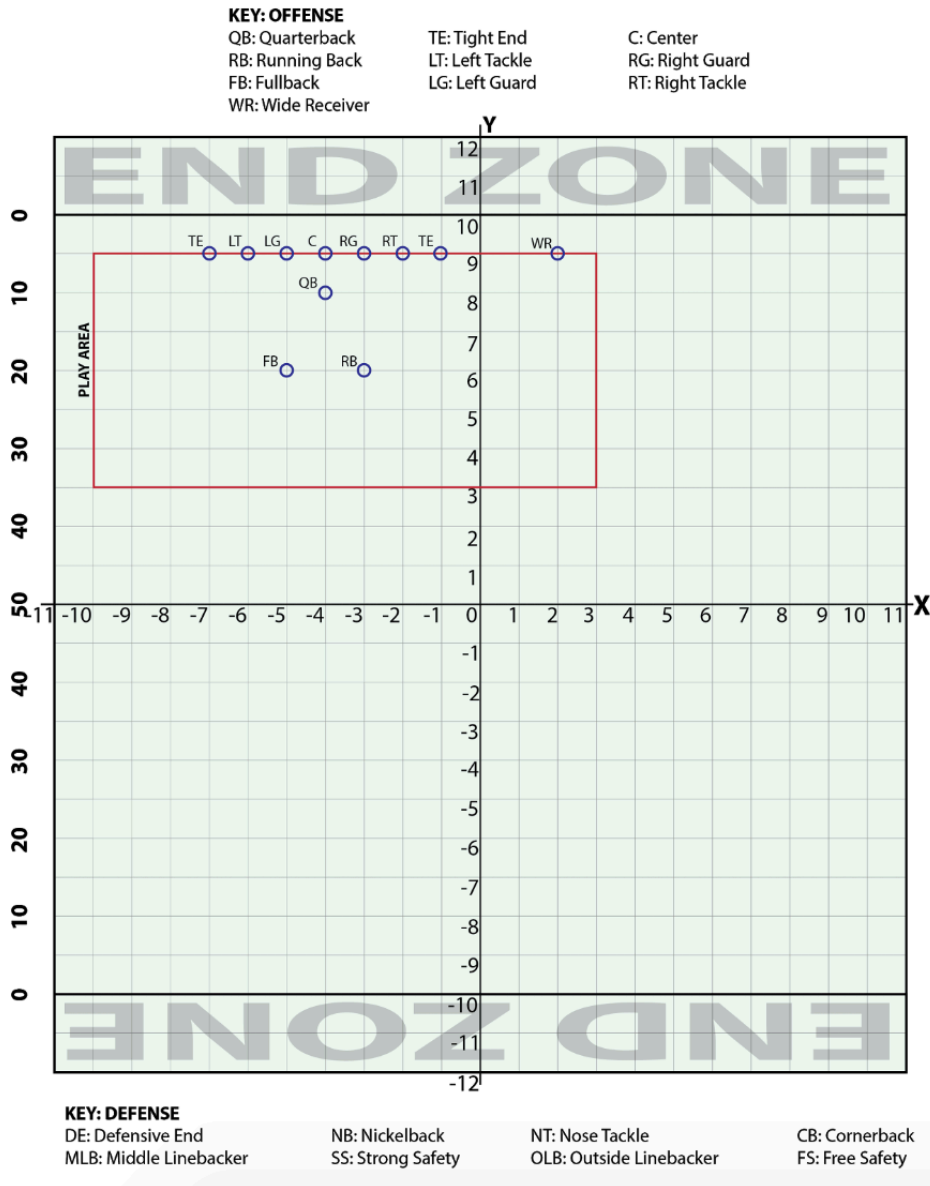
## **Module 7.1: Intricacies of a Football Field**

1. What information do you need to calculate the area of play? (Select all that apply)
  - a. The length
  - b. The circumference
  - c. The height
  - d. The width
  - e. The number of players
  - f. The position of the players
  - g. The dimensions of the field

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2. Using the coordinate plane system, determine the area of play:





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## **Module 8.1: Properties of a Football and Foam Football**

1. True or False: Different materials have the same measurable properties.
  
2. A youth football behaves differently than a foam football because (multiple answers):
  - a. They are made of different materials
  - b. They have different weights
  - c. Different kids use them
  - d. They are different sizes