

Name \_\_\_\_\_

Date \_\_\_\_\_

## Analyzing Probabilities and Decisions - Step-by-Step Lesson

During a pretend football game, teams have choice of kicking a short field or trying to score on the end zone again. 2 points are awarded for the short field goal and getting the ball in the end zone is worth 4 points.



Three strategies are: -

Field goal success (2 point) = 60%

Conversion by running success (4 points) = 57%

Conversion by passing success (4 points) = 74.3%

If the team gets 12 chances to score this season, which strategy would result in statistically the most points?

**Explanation:** We have to calculate the total number of predicted points they could amass. We will need to evaluate each of the three methods of scoring points.

Field goals: If they were allowed 12 tries at a 2 point field goal, they would be successful 60% of the time:

$$12 \times .6 = 7 \quad (\text{Result in 7 successful field goals.})$$

Each field goals is worth 2 point, so this would result in 14 ( $7 \times 2$ ) points.

Conversion by Running: If they were allowed 12 tries at a 4 point conversion, they would be successful 57% of the time:

$$12 \times .57 = 7 \quad (\text{Result in 7 successful conversions.})$$

Each conversion is worth 4 points, so this would result in 28 ( $7 \times 4$ ) points.

Conversion by Passing: If they were allowed 12 tries at a 4 point conversion, they would be successful 74.3% of the time:

$$12 \times .743 = 9 \quad (\text{Result in 9 successful conversions.})$$

Each conversion is worth 4 points, so this would result in 36 ( $9 \times 4$ ) points.

Based on this, they would score the most points by going for a conversion by passing each time they had a chance at an extra point.

