Name_____ **Key**
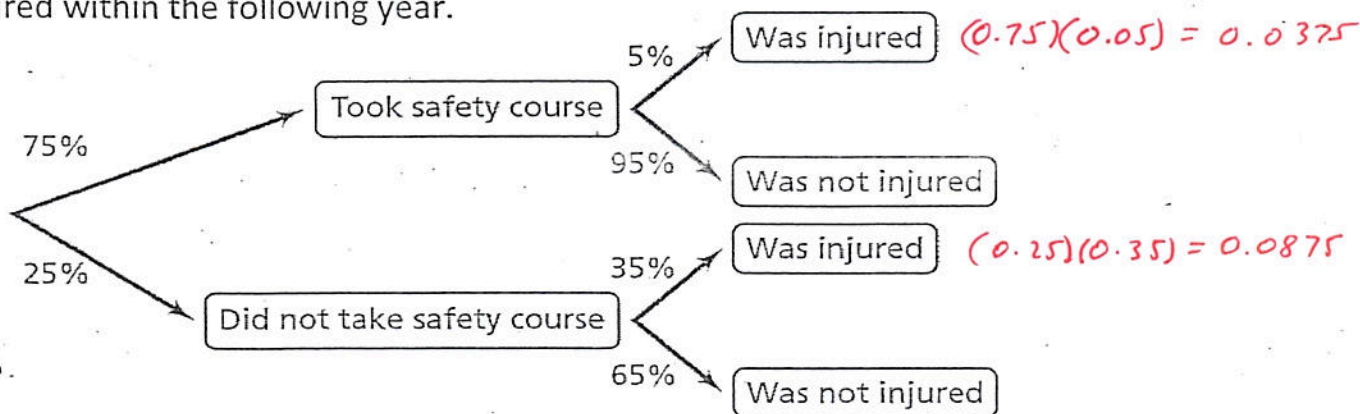
Date_____ Period_____

The tree diagram below shows the percentages of students who took a safety course and who were injured within the following year.
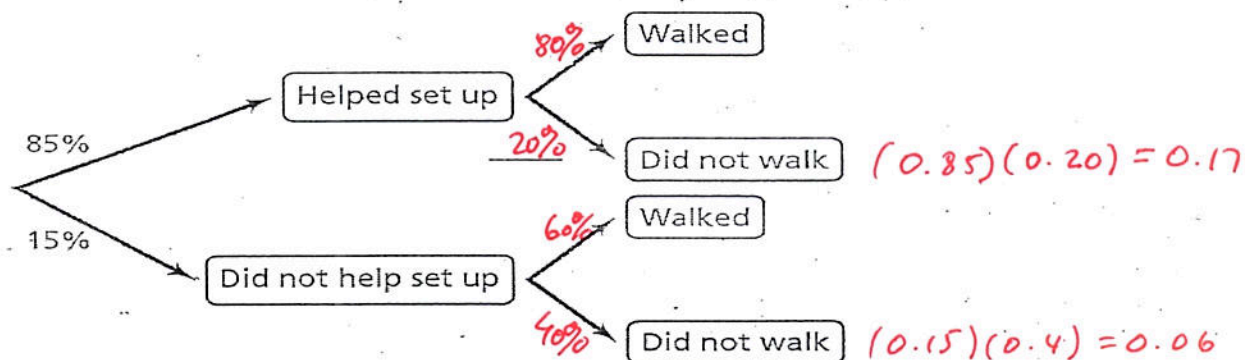
```
                                              5%  ↗ [Was injured]  (0.75)(0.05) = 0.0375
                    [Took safety course] <
        75%                               95% ↘ [Was not injured]
   ↗
 <                                            35% ↗ [Was injured]  (0.25)(0.35) = 0.0875
        25%         [Did not take safety course] <
                                              65% ↘ [Was not injured]
```

1. Find P (Did not take safety course AND was not injured)

$$(0.25)(0.65) = \boxed{0.1625}$$

2. What is the overall percentage of students who were injured?

$$P(injured) = (0.75)(0.05) + (0.25)(0.35) = \boxed{0.125} \text{ or } \boxed{12.5\%}$$

The tree diagram below shows the percentages of students who helped set up a charity walk and the percentages of those who walked in the event. Of the students who helped set up, 80% walked. Of the students who did not help set up, 60% walked.

```
                                   80% ↗ [Walked]
                    [Helped set up] <
        85%                        20% ↘ [Did not walk]  (0.85)(0.20) = 0.17
   ↗
 <                                  60% ↗ [Walked]
        15%     [Did not help set up] <
                                    40% ↘ [Did not walk]  (0.15)(0.4) = 0.06
```

3. Place the correct percent in the blank above on the tree diagram and explain what is meant by having that probability.
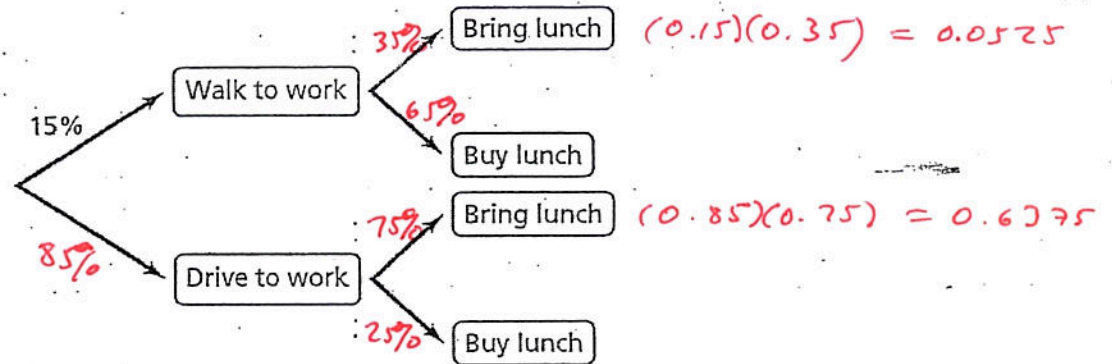
The percent of students that did not walk given those that helped set up.

4. Find P(Helped set up AND Walked) $= (0.85)(0.80) = \boxed{0.68}$

5. What is the overall percentage of ~~athletes~~ students who did not walk?

$$P(did\ not\ walk) = (0.85)(0.20) + (0.15)(0.4) = \boxed{0.23} \text{ or } \boxed{23\%}$$

The tree diagram shows the percentages of people who walk or drive to work and whether they bring lunch to work or buy lunch.

Of the people who drive to work, only 25% buy a lunch. Of the people who walk to work, 35% bring a lunch.

6. Complete the tree diagram. ✓

7. Find P(Walk to work AND Bring lunch)

$$= (0.15)(0.35) = \boxed{0.0525}$$

8. What is the overall percentage of people who bring lunch?

$$= (0.15)(0.35) + (0.85)(0.75) = \boxed{0.69} \text{ or } \boxed{69\%}$$