

Name Solutions

CLASS RANK	DEAN'S LIST	NOT ON DEAN'S LIST
FRESHMEN	100	300
SOPHOMORE	250	150
JUNIOR	350	50
SENIOR	300	100
TOTAL	1000	600

1. A student is selected at random from the group. What is the probability the student selected

A. Is on the Dean's list given that student is a freshman

$$100/400 = \frac{1}{4} = 0.25$$

B. Is a freshman given that the students is on the Dean's list

$$100/1000 = 1/10 = 0.1$$

C. Is a freshman on the Dean's list

$$100/1600 = 1/16 = 0.0625$$

D. Is a freshman but not on the Dean's list

$$300/1600 = 3/16 = 0.1875$$

E. Is a freshman or on the Dean's list

$$1300/1600 = 13/16 = 0.8125$$

F. Is a freshman or not on the Dean's list

$$700/1600 = 7/16 = 0.4375$$

G. Are the events student is a freshman and student is on the Dean's list independent? Show Work!!

$$\text{No, } P(F) = 400/1600 = \frac{1}{4} = 0.25 \neq P(F|D) = 1/10 = 0.1$$

$$P(F \cap D) = 100/1600 = 0.0625 \neq P(F) * P(D) = (400/1600)(1000/1600) = 0.15625$$