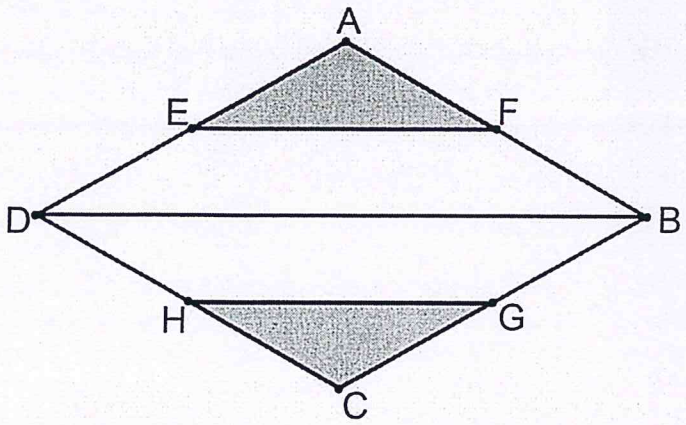
Bellwork Alg 2B Monday, April 23, 2018

1. Rhombus ABCD has sides of length 20cm. Points E, F, G, and H are midpoints. The measure of $\angle ADB = 40°$. Find the probability that a point picked at random in the Rhombus is in the shaded region. Give the answer as a percent rounded to the nearest hundredth.



P(Shaded Region) =

2. At a restaurant 55% of the customers order dessert. Find the probability that of the next 7 customers up to 2 of them order dessert. Give answer as a percent rounded to the nearest tenth.

P(up to 2 order dessert) =

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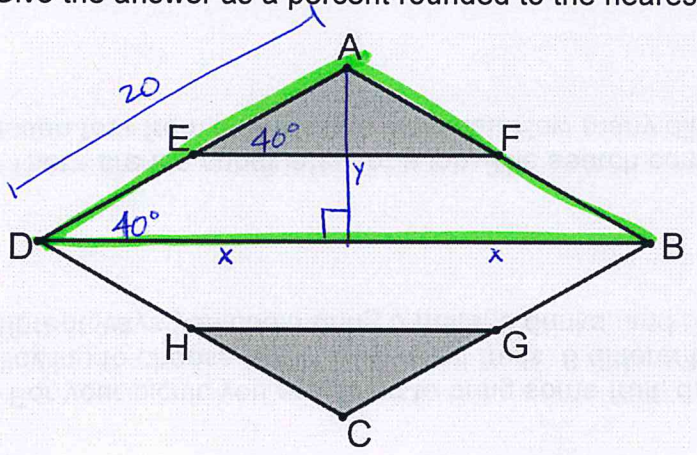


$\cos 40° = \frac{x}{20}$ $x = 15.32$

$\sin 40° = \frac{y}{20}$ $y = 12.86$

P(Shaded Region) =

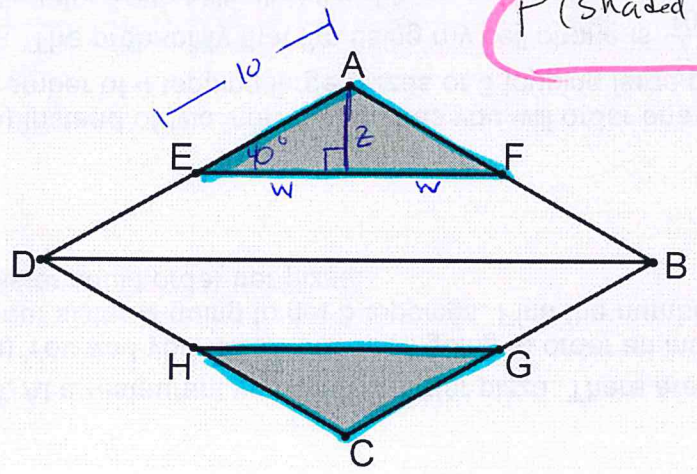
Area Δ ADB $= \frac{1}{2}(2 \cdot 15.32)(12.86) = 197.02$

Area of Rhombus ABCD

$= 2(\Delta ADB) = 2(197.02)$

$= 394.04$

$P(\text{shaded Region}) = \frac{103.1}{394.04} = 26.16\%$



$\cos 40° = \frac{w}{10}$ $w = 7.66$

$\sin 40° = \frac{z}{10}$ $z = 6.43$

Area of Δ AEF $= \frac{1}{2}(2 \cdot 7.66)(6.43)$

$= 51.55$

Area of shaded region

$2(51.55) = 103.1$

2. At a restaurant 55% of the customers order dessert. Find the probability that of the next 7 customers up to 2 of them order dessert. Give answer as a percent rounded to the nearest tenth.

P(up to 2 order dessert) =

$p(\text{success}) = .55$ $p(\text{failure}) = .45$

up to 2 means 0, 1, or 2

0 $\quad {}_7C_0 (.55)^0 (.45)^7 = .4\%$

1 $\quad {}_7C_1 (.55)^1 (.45)^6 = 3.2\%$

2 $\quad {}_7C_2 (.55)^2 (.45)^5 = 11.7\%$

15.3%