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Week 5 Quiz

Question 1

1/1 point (graded)

The retention rate for a cohort of customers acquired in the beginning of 2010 was $r_1=0.85$ in the first year (i.e., the probability that a customer from this cohort is still with the firm at the end of the first year is 0.85), $r_2=0.9$ in the second year and $r_3=0.92$ in the third year. What is the probability that a customer from that cohort would still be with the firm at the end of the third year?

☐ 0.77

☐ 0.92

☐ 0.83

☒ 0.7 ✓

Explanation

retention rate = $r_1 \cdot r_2 \cdot r_3$

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You have used 1 of 1 attempt

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Question 2

1/1 point (graded)

What is the present value of \$120 that you will get two years from now, if the yearly discount rate is 10%?

☐ \$145

☐ \$109

☐ \$208

☒ \$99 ✓

Explanation

Present value = $120/(1+0.1)^2$

Submit

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Question 3

1/1 point (graded)

If the annual margin of a customer for the first year is $m_1 = \$100$ (received at the end of the year) and the annual margin for the second year is $m_2 = \$120$, the yearly retention rate is 0.85 for both years and the discount rate is 12%, what is the two-year value of the customer?

☐ \$203

☐ \$167

☐ \$340

☒ \$145 ✓

Explanation

$100 \cdot 0.85 / (1 + 0.12) + 120 \cdot 0.85^2 / (1 + 0.12)^2$

You have used 1 of 1 attempt

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Question 4

1/1 point (graded)

What is the value of the margin multiple when the retention rate is 85% and the discount rate is 15%?

☐ 0.5☐ 3.33☐ 0.74☒ 2.83 ✓

Explanation

Margin Multiple = $r/(1+i-r)$

You have used 1 of 1 attempt

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Question 5

1/1 point (graded)

Suppose 150 customer accounts of a company purchased 3000 units per month. The price per unit is \$15 and the variable cost is \$6. What is the annual margin m per customer?

☐ \$27000☐ \$180

☐ \$3600☒ \$2160 ✓**Explanation**

$$m = (3000 * 12 / 150) * (15 - 6)$$

You have used 1 of 1 attempt

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Question 6

1/1 point (graded)

Given the information in Question 5, suppose the retention rate is 90% and the discount rate is 14%. What is the maximum that the company should be willing to spend to acquire a new account? Solve this based on the CLV formula that assumes constant margin, retention rate and discount rate.

☐ \$1705☐ \$13500☐ \$675☒ \$8100 ✓**Explanation**

$$\text{margin multiple} = 0.9 / (1 + 0.14 - 0.9) = 3.75$$

$$m = 2160$$

$$\text{maximum amount} = 2160 * 3.75 = \$8100$$

You have used 1 of 1 attempt

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Question 7

1/1 point (graded)

Given the information in questions 5 and 6, what is the maximum that the company should spend per customer to increase retention rate to 0.95?

☐ \$45

☐ \$900

☐ \$2700

☒ \$540 ✓

Explanation

old margin multiple = $0.9/(1+0.14-0.9)=3.75$

new margin multiple = $0.95/(1+0.14-0.95)=5$

new margin = $2160 \times 3.75/5 = 1620$

The maximum amount the company should spend is $2160 - 1620 = 540$

Submit

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Question 8

1/1 point (graded)

The FBP company sells paints with annual sales of \$17 million and a gross profit of 30%. The company currently has 400 painters who are regular customers. It is planning to spend an additional \$750,000 to acquire new customers (painters). Calculate how many new painters it needs to acquire to breakeven on the lifetime value when the retention rate is 80% and the discount rate is 10%.

☐ 24

☐ 7

☐ 81☒ 22 ✓**Explanation** $\text{margin} = 17m \times 0.3 / 400 = 12750$ $\text{margin multiple} = 0.8 / (1 + 0.1 - 0.8)$ $\text{clv} = 34000$

In order to breakeven, the company needs to acquire $750000 / 34000 = 22$ painters.

You have used 1 of 1 attempt

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Question 9

1/1 point (graded)

What would be the breakeven number of painters if the retention rate was 90%, instead of the 80%?

☐ 22☐ 4☐ 72☒ 13 ✓**Explanation** $\text{margin} = 17m \times 0.3 / 400 = 12750$ $\text{new margin multiple} = 0.9 / (1 + 0.1 - 0.9) = 4.5$ $\text{clv} = 57375$

In order to breakeven, the company needs to acquire $750000 / 57375 = 13$ painters.

You have used 1 of 1 attempt

 Answers are displayed within the problem

Question 10

1/1 point (graded)

A company is interested in increasing the lifetime value of its customer base. It can use which of the below mentioned strategies for achieving this?

- ☐ Cross selling
- ☐ Increase Retention Rate
- ☐ Efficient Customer Acquisition
- ☒ All of the above ✓

Submit

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