**3-18**

**Sunny Spot Travel Agency specializes in flights between Toronto and Jamaica. It books passengers on Canadian Air. Sunny Spot’s fixed costs are $23,500 per month. Canadian Air charges passengers $1,500 per round-trip ticket.**

**Calculate the number of tickets Sunny Spot must sell each month to (a) break even and (b) make a target operating income of $17,000 per month in each of the following independent cases.**

1. **Sunny Spot’s variable costs are $43 per ticket. Canadian Air pays Sunny Spot 6% commission on ticket price.**
2. **Sunny Spot’s variable costs are $40 per ticket. Canadian Air pays Sunny Spot 6% commission on ticket price.**
3. **Sunny Spot’s variable costs are $40 per ticket. Canadian Air pays $60 fixed commission per ticket to Sunny Spot. Comment on the results.**
4. **Sunny Spot’s variable costs are $40 per ticket. It receives $60 commission per ticket from Canadian Air. It charges its customers a delivery fee of $5 per ticket. Comment on the results.**

Solution

1. **a**

SP = 6% × $1,500 = $90 per ticket

VCU = $43 per ticket

CMU = $90 – $43 = $47 per ticket

FC = $23,500 a month

|  |  |  |
| --- | --- | --- |
| Breakeven number of units (Q) | = | Fixed costs (FC) |
| Contribution margin  per unit (CMU) |

|  |  |  |
| --- | --- | --- |
|  | = | $23,500 |
| $47 per ticket |

= 500 tickets

1. **b**

|  |  |  |
| --- | --- | --- |
| Q | = | FC+TOI |
| CMU |
| Q | = | $23,500 + $17,000 | |
| $47 per ticket | |

= 862 tickets

1. **a**

SP = $90 per ticket

VCU = $40 per ticket

CMU = $90 – $40 = $50 per ticket

FC = $23,500 a month

|  |  |  |
| --- | --- | --- |
| Q | = | FC |
| CMU |
| Q | = | $23,500 | |
| $50 per ticket | |

= 470 tickets

**2.b**

|  |  |  |
| --- | --- | --- |
| Q | = | FC+TOP |
| CMU |
| Q | = | $23,500 + $17,000 | |
| $50 per ticket | |

= 810 tickets

**3.a**

SP = $60 per ticket

VCU = $40 per ticket

CMU = $60 – $40 = $20 per ticket

FC = $23,500 a month

|  |  |  |
| --- | --- | --- |
| Q | = | FC |
| CMU |
| Q | = | $23,500 | |
| $20 per ticket | |

= 1,175 tickets

**3.b**

|  |  |  |
| --- | --- | --- |
| Q | = | FC+TOP |
| CMU |
| Q | = | $23,500 + $17,000 | |
| $20 per ticket | |

= 2,025 tickets

**4.a**

SP = $65 ($60 + $5) per ticket

VCU = $40 per ticket

CMU = $65 – $40 = $25 per ticket

FC = $23,500 a month

|  |  |  |
| --- | --- | --- |
| Q | = | FC |
| CMU |
| Q | = | $23,500 | |
| $25per ticket | |

= 940 tickets

**4.b**

|  |  |  |
| --- | --- | --- |
| Q | = | FC+TOP |
| CMU |
| Q | = | $23,500 + $17,000 | |
| $25 per ticket | |

= 1,620 tickets

**3-23**

**Tuff Kids Jeans Co. sells blue jeans wholesale to major retailers across the country. Each pair of jeans has a selling price of $30 with $21 in variable costs of goods sold. The company has fixed manufacturing costs of $1,200,000 and fixed marketing costs of $300,000. Sales commissions are paid to the wholesale sales reps at 5% of revenues. The company has an income tax rate of 25%.**

***Required:***

1. **How many jeans must Tuff Kids sell in order to break even?**
2. **How many jeans must the company sell in order to reach:**

**a. a target operating income of $450,000?**

**b. a net income of $450,000?**

1. **How many jeans would TuffKids have to sell to earn the net income in part 2b if (consider each requirement independently).**
   1. **The contribution margin per unit increases by 10%**
   2. **The selling price is increased to $32.50**
   3. **The company outsources manufacturing to an overseas company increasing variable costs per unit by $2.00 and saving 60% of fixed manufacturing costs.**

Solution

1. CMU = $30−$21−(0.05 × $30) = $7.50

Q =  = 

= 200,000 pairs

Note: No income taxes are paid at the breakeven point because operating income is $0.

2a. Q =  = 

= 

= 260,000 pairs

2b. Target operating income =

$600,000

=

= 280,000 pairs

3a. Contribution margin per unit increases by 10%

Contribution margin per unit = $7.50 × 1.10 = $8.25

=

= 254,545 pairs (rounded)

3b.

Increasing the selling price to $32.50

Contribution margin per unit =

$32.50 − $21 − (0.05 × $32.50) = $9.875

=

= 212,658 pairs (rounded)

3c.

* Increase variable costs by $2.50 per unit and decrease fixed manufacturing costs by 50%.

Contribution margin per unit = $30 – $23 ($21 + $2) – (0.05 × $30) = $5.50

Fixed manufacturing costs = (1 – 0.6) × $1,200,000 = $480,000

Fixed marketing costs = $300,000

Total fixed costs = $480,000 + $300,000 = $780,000

=

= 250,909 pairs (rounded)