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Question 1 If he gives up 9 sodas he gets 3 pizzas. Thus, he get 3 sodas per pizza. Therefore,



Question 2 For every unit of good 1 she can acquire 2 units of good 2. Therefore,



Question 3

- (0, **12**),
- (2, **8**),
- (6, **3**),
- (**12**, 0),

Graph the indifference curve in the grid below and shade that set of all consumption choices that are strictly better than (4, 4).



Question 4 The partial derivatives are given by $1/\sqrt{x_1}$ and 1. The MRS is therefore $-1/\sqrt{x_1}$. Therefore,

MRS(16, 4) = $-\frac{1}{4}$

Question 5 If $x_2 = 10$ then $x_1 = 5$. Therefore, the income is $5p_1 + 10p_2$, i.e.,



Question 6 The optimal choice is interior. Therefore, $p_1/p_2 = 1/3$.

Question 7 Again, the optimal choice is interior. Therefore,

MRS(3, 7) =
$$-\frac{1}{2}$$

Question 8



Question 9 At the optimal choice $MRS(x_1, x_2) = -\frac{4}{x_1+x_2+4} = -\frac{1}{4}$, which implies $16 = x_1+x_2+4$, i.e., $x_1+x_2 = 12$. The budget line equation is $x_1+4x_2 = 42$. Therefore,

 $x_1 = 2$ $x_2 = 10$

Question 10



Question 11 The MRS is -(17-2h). If the price of an hour of calls is 5 then 17-2h = 5. Therefore h = 6.

The utility of not signing up is u(0, 1000) = 1,000. For 6 hours of calls the person pays 30 Dollars. In addition he/she pays *F*. Therefore, u(6, 1000 - 30 - F) = 1,000, i.e., 1,036 - F = 1,000. Therefore, *F* can be at most 36.

If the consumer signs up, he/she will call h = 6 hours

The company will select F = 36 as fixed fee

Question 12

