Answers

1. a) Direct variation: the equation is of the form $y = kx$.
b) Partial variation: the equation is of the form $y = mx + b$.
c) Partial variation: the equation is of the form $y = mx + b$.
d) Direct variation: the equation is of the form $y = kx$.

2. a)

x	y
0	5
1	10
2	15
3	20
4	25
7	40

b) 5, 5 **c)** $y = 5x + 5$
d) Graphs may vary.
e) The graph is a straight line that intersects the y-axis at (0, 5). The y-values increase by 5 as the x-values increase by 1.

3. a)

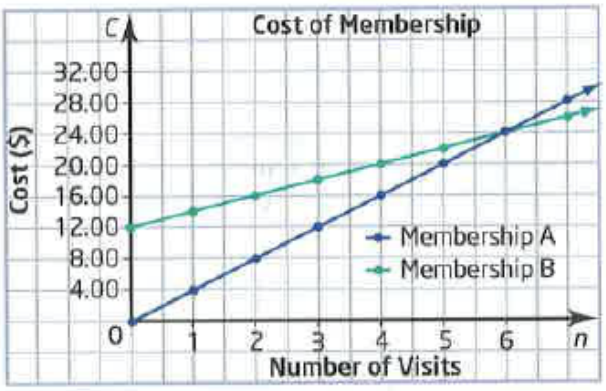
x	y
0	-2
1	3
2	8
3	13
4	18
7	33

b) -2, 5 **c)** $y = 5x - 2$
d) Graphs may vary.
e) The graph is a straight line that intersects the y-axis at (0, -2). The y-values increase by 5 as the x-values increase by 1.

4. a) \$7.00, \$1.50 × number of toppings
b) $C = 1.50n + 7.00$ **c)** \$14.50

5. a) \$250, \$4 × number of students
b) $C = 4n + 250$ **c)** \$350

6. a)



b) A: direct variation; B: partial variation
c) In both cases, C represents the cost of membership and n represents the number of visits.
A: $C = 4n$; B: $C = 2n + 12$
d) Membership A is cheaper when fewer than six visits are made. Membership B is cheaper when more than six visits are made. They cost the same when six visits are made.

7. a) The fixed cost is \$100 and could represent, for example, the cost of paper, ink, and overhead.
b) From the table, it costs \$20 to print 100 flyers, so the variable cost to print one flyer is \$20 ÷ 100 or \$0.20.
c) $C = 0.2n + 100$
d) \$300 **e)** 900 flyers

8.

a) $P = 10.13d + 102.4$, where P is the pressure, in kilopascals, and d is the depth below the lake's surface, in metres.