4.2 Practice – Linear Relations

**1.** For each table of values below:

**i)** Does it represent a linear relation?

**ii)** If the relation is linear, describe it.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **a)** | *x* | *y* |  | **b)** | *x* | *y* |  | **c)** | *x* | *y* |  | **d)** | *x* | *y* |
|  | 1 | 5 |  |  | 1 | 1 |  |  | 4 | 11 |  |  | –2 | –12 |
|  | 2 | 12 |  |  | 3 | 3 |  |  | 2 | 14 |  |  | –1 | –5 |
|  | 3 | 19 |  |  | 5 | 7 |  |  | 0 | 17 |  |  | 0 | 0 |
|  | 4 | 26 |  |  | 7 | 13 |  |  | –2 | 20 |  |  | 1 | 3 |
|  | 5 | 33 |  |  | 9 | 21 |  |  | –4 | 23 |  |  | 2 | 4 |

**2.** Each table of values represents a linear relation. Complete each table.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **a)** | *x* | *y* |  | **b)** | *x* | *y* |  | **c)** | *x* | *y* |  |
|  | 1 |  |  |  | 1 |  |  |  | 4 |  |  |
|  | 2 |  |  |  | 3 | 3 |  |  | 2 | 14 |  |
|  | 3 | 14 |  |  | 5 | –1 |  |  | 0 | 19 |  |
|  | 4 | 18 |  |  | 7 |  |  |  | –2 |  |  |
|  | 5 |  |  |  | 9 |  |  |  | –4 |  |  |

**3.** A computer repair company charges $80 for a service call, plus $50 an hour for labour, rounded up to the nearest hour.

**a)** Create a table to show the relation between the time in hours for the service call   
and the total cost.

**b)** Is this relation linear? Justify your answer.

**c)** If you were to graph the data, would you join the points? Explain.

**d)** Let *n* represent the time in hours for the service call and *C* represent the total cost in dollars. Write an equation that relates *C* and *n*.

**e)** How much will a 7 hour service call cost?

4.2 Practice – Answers

**1. a) i)** Yes

**ii)** As *x* increases by 1, *y* increases by 7.

**b)** **i)** No

**ii)** As *x* increases by 2, *y* does not increase by a constant number.

**c) i)** Yes

**ii)** As *x* decreases by 2, *y* increases by 3.

**d) i)** No

**ii)** As *x* increases by 1, *y* does not increase by a constant number.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **a)** | *x* | *y* |  | **b)** | *x* | *y* |  | **c)** | *x* | *y* |
|  | 1 | 6 |  |  | 1 | 7 |  |  | 4 | 9 |
|  | 2 | 10 |  |  | 3 | 3 |  |  | 2 | 14 |
|  | 3 | 14 |  |  | 5 | –1 |  |  | 0 | 19 |
|  | 4 | 18 |  |  | 7 | –5 |  |  | –2 | 24 |
|  | 5 | 22 |  |  | 9 | –9 |  |  | –4 | 29 |

**2.**

**3. b)** Yes, as the time in hours increases by 1, the total cost increases by $50.

**c)** No, since you cannot be charged for a partial hour. It gets rounded up to the nearest hour.

**d)** *C* = 50*n* + 80

**e)** $430

