

① minimum

② Not Quadratic - It is linear

③
$$\begin{array}{r} 2x^2 + y = 3x - 1 \\ -2x^2 \quad -2x^2 \\ \hline y = -2x^2 + 3x - 1 \end{array}$$
 Quadratic

④

X	-4	-3	-2	-1	0
Y	39	18	3	-6	-9

$\xrightarrow{+1}$ $\xrightarrow{+1}$ $\xrightarrow{+1}$ $\xrightarrow{+1}$
 $\xrightarrow{-21}$ $\xrightarrow{-15}$ $\xrightarrow{-9}$ $\xrightarrow{-3}$
 $\xrightarrow{+6}$ $\xrightarrow{+6}$ $\xrightarrow{+6}$

Second difference is the same
Quadratic

⑤

	-10	-9	-8	-7	-6
Y	15	17	19	21	23

$\xrightarrow{+1}$ $\xrightarrow{+1}$ $\xrightarrow{+1}$ $\xrightarrow{+1}$
 $\xrightarrow{+2}$ $\xrightarrow{+2}$ $\xrightarrow{+2}$ $\xrightarrow{+2}$

Not Quadratic \rightarrow Linear

⑥-⑨ \rightarrow See Graph paper

⑩ Downward $a = -3$ ⑪ upward $a = 6$ ⑫ downward $a = -1$
(when put in standard form)

⑬ upward $a = 1$ ⑭ upward $a = 2$
(standard form) ⑮ upward $a = -3$
(standard form)

⑯ Vertex $(-1, 3)$
maximum
D: $\{x \in \mathbb{R}\}$
R: $\{y \leq 3\}$
means domain is all real numbers

⑰ Vertex $(-3, -4)$
minimum
D: $\{x \in \mathbb{R}\}$
R: $\{y \geq -4\}$

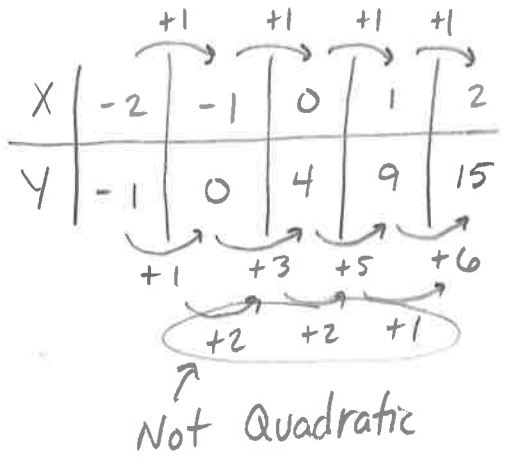
⑱ Vertex $(-1, -4)$
minimum
D: $\{x \in \mathbb{R}\}$
R: $\{y \geq -4\}$

⑲ Vertex $(3, 4)$
maximum
D: $\{x \in \mathbb{R}\}$
R: $\{y \leq 4\}$

⑳ Vertex $(0, 6)$
maximum
D: $\{x \in \mathbb{R}\}$
R: $\{y \geq -4\}$

㉑ Vertex $(4, -4)$
minimum
D: $\{x \in \mathbb{R}\}$
R: $\{y \geq -4\}$

22



23

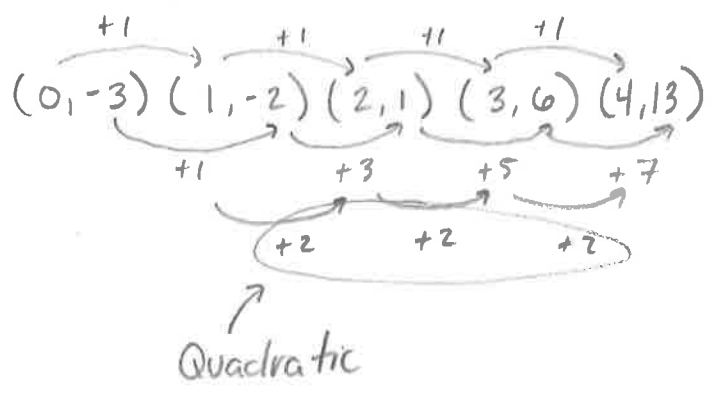
$$-3x^2 + x = 4 - 11$$

$$\quad \quad \quad +11 \quad +11$$

$$-3x^2 + x + 11 = 4$$

Quadratic

24



25

$$y = \frac{1}{6}x^2 + \frac{2}{3}x - \frac{4}{9}$$

Quadratic

33

Vertex (0, -5)
 minimum
 D: $\{x \in \mathbb{R}\}$
 R: $\{y \geq -5\}$

34

Vertex (1, -3)
 max
 D: $\{x \in \mathbb{R}\}$
 R: $\{y \leq -3\}$

35

Vertex (0, 0)
 max
 D: $\{x \in \mathbb{R}\}$
 R: $\{y \leq 0\}$

36

Vertex (-4, 2)
 min
 D: $\{x \in \mathbb{R}\}$
 R: $\{y \geq 2\}$

37

Vertex (-2, -2)
 min
 D: $\{x \in \mathbb{R}\}$
 R: $\{y \geq -2\}$

38

Vertex (2, 4)
 max
 D: $\{x \in \mathbb{R}\}$
 R: $\{y \leq 4\}$

39

Never

40

Never

41

Always

42

Sometimes

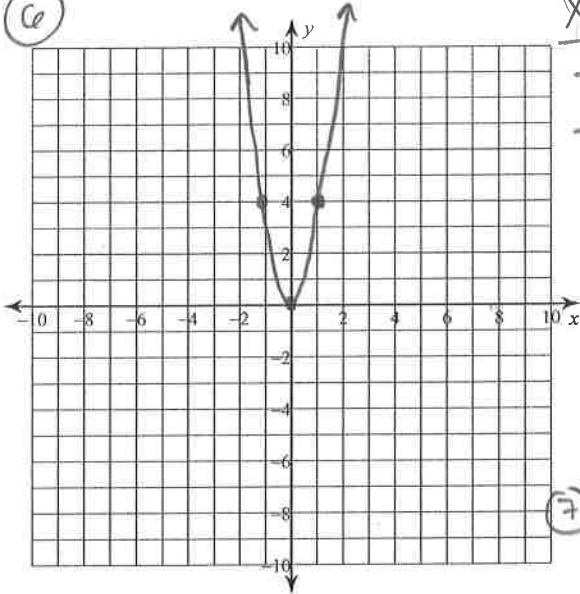
43

Sometimes

44

Always

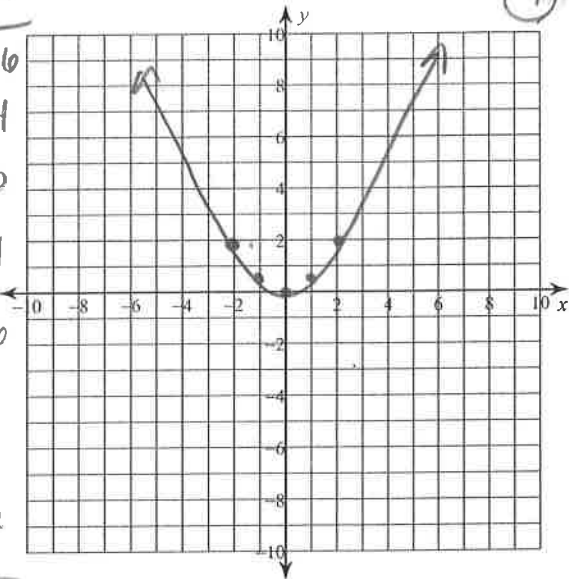
6



6

x	y = 4x ²
-2	4(-2) ² = 16
-1	4(-1) ² = 4
0	4(0) ² = 0
1	4(1) ² = 4
2	4(2) ² = 16

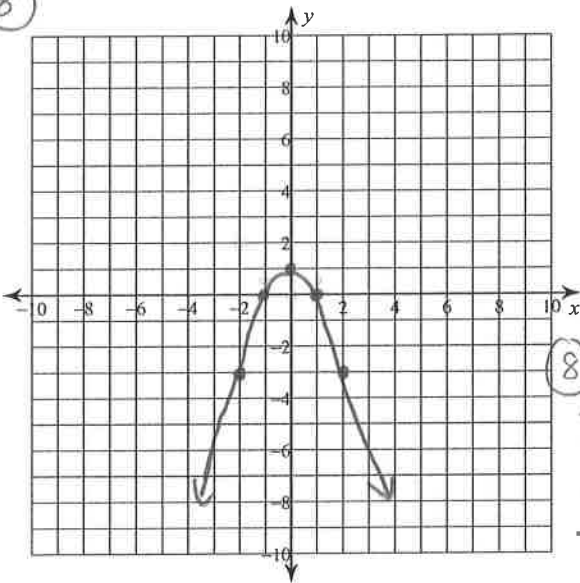
7



7

x	y = 1/2 x ²
-2	1/2(-2) ² = 2
-1	1/2(-1) ² = 1/2
0	1/2(0) ² = 0
1	1/2(1) ² = 1/2
2	1/2(2) ² = 2

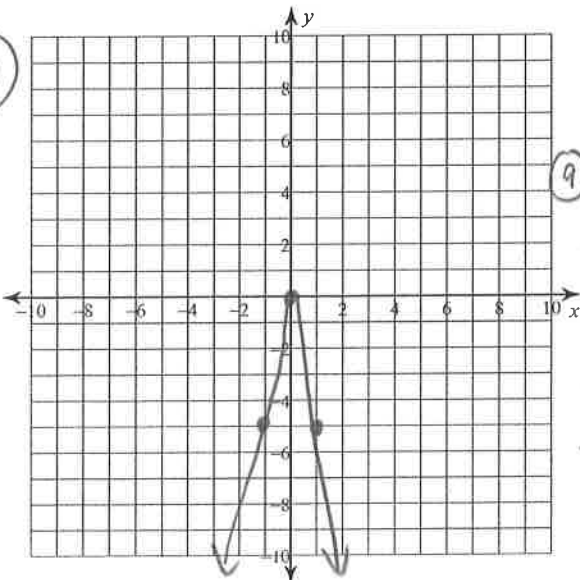
8



8

x	y = -x ² + 1
-2	-(-2) ² + 1 = -4 + 1 = -3
-1	-(-1) ² + 1 = -1 + 1 = 0
0	-(0) ² + 1 = 1
1	-(1) ² + 1 = 0
2	-(2) ² + 1 = -3

9



9

x	y = -5x ²
-2	-5(-2) ² = -20
-1	-5(-1) ² = -5
0	-5(0) ² = 0
1	-5(1) ² = -5
2	-5(-2) ² = -20

