

Is it linear? Use your notes for help!

In Exercises 5–8, determine whether the equation represents a *linear* or *nonlinear* function. Explain.

5.  $y = 4x - 2$  **Linear**

$x + y$  to 1st power, no  $xy$

6.  $y = \frac{5}{x} + 5$

**non-linear**  
 $x$  is in denominator

7.  $y = \sqrt{x} + 5$

**non-linear**  
 $x$  is inside radical

$x$  is not in denominator, or radical, exponent

8.  $2y = 18 - 2x$

**linear**

**EXAMPLE** Identifying a Linear Function Using a Table

Does the table represent a *linear* or *nonlinear* function? Explain.

|   |   |   |    |    |
|---|---|---|----|----|
| x | 1 | 3 | 5  | 7  |
| y | 3 | 8 | 13 | 18 |

**SOLUTION**

Determine whether the rate of change is constant.

|   |   |     |     |     |
|---|---|-----|-----|-----|
|   |   | + 2 | + 2 | + 2 |
| x | 1 | 3   | 5   | 7   |
| y | 3 | 8   | 13  | 18  |
|   |   | + 5 | + 5 | + 5 |

As  $x$  increases by 2,  $y$  increases by 5. The rate of change is constant.

► So, the function is linear.

In Exercises 3 and 4, determine whether the table represents a *linear* or *nonlinear* function. Explain.

3.

|   |   |   |   |   |
|---|---|---|---|---|
| x | 0 | 1 | 2 | 3 |
| y | 3 | 5 | 7 | 9 |

+1 +1 +1  
+2 +2 +2

**Linear**  
constant rate of change

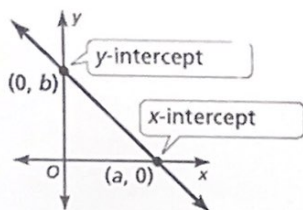
4.

|   |   |   |   |    |
|---|---|---|---|----|
| x | 1 | 4 | 7 | 10 |
| y | 2 | 5 | 6 | 10 |

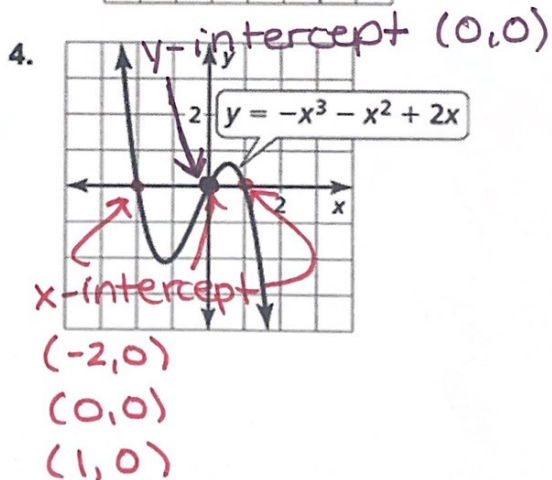
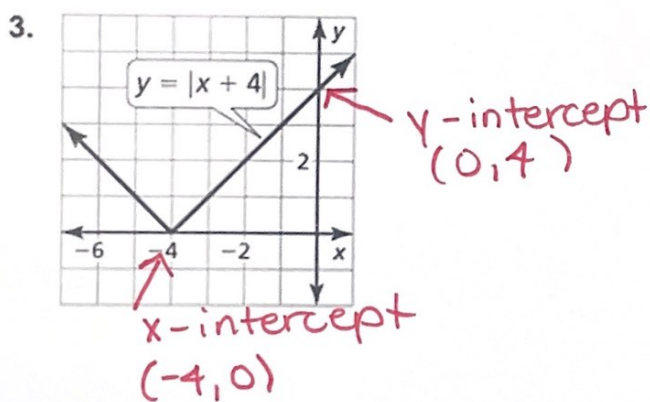
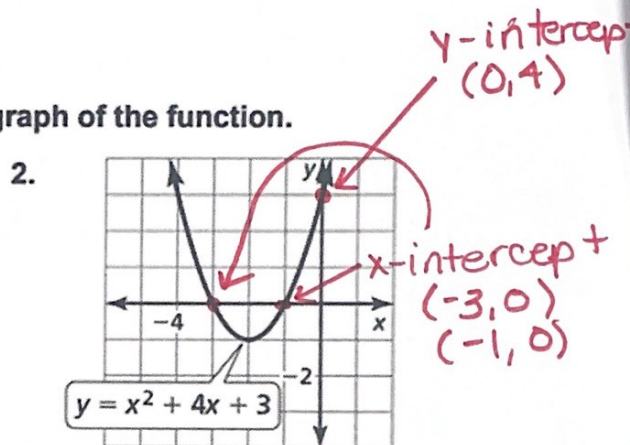
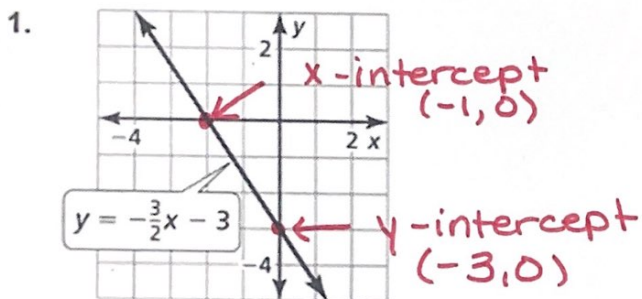
+3 +3  
+3 +1 +2

**non-linear**  
It does not have a constant rate of change.

X and Y intercepts



In Exercises 1–4, estimate the intercepts of the graph of the function.



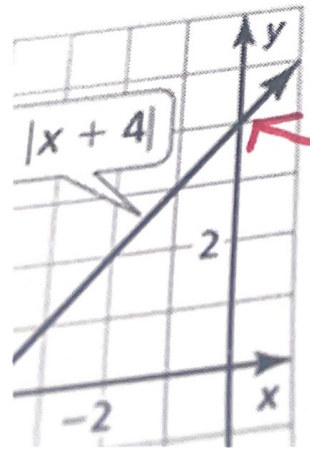
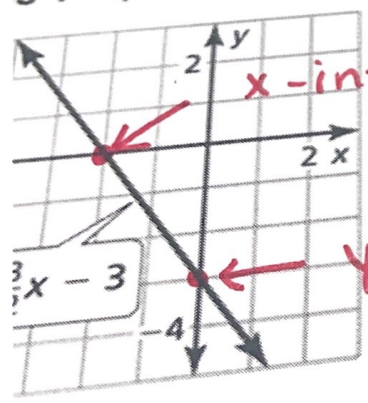
pts

intercept

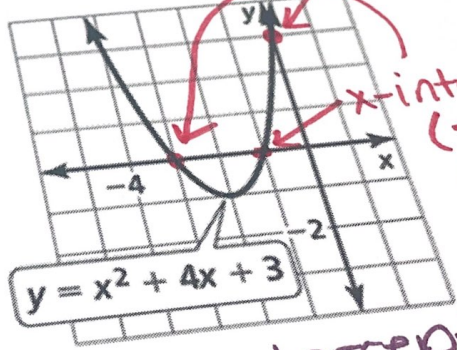
x-intercept



1-4, estimate the intercepts of the graph of the function.



2.



4.

