

## 1. Reinquadratische Gleichungen

1. Zeichne die Grafen der nachfolgenden Funktionen und gib die Nullstellen an.

a)  $y = x^2 - 4$

b)  $y = x^2 - 6,25$

c)  $y = x^2 - 1$

d)  $y = \frac{1}{2}x^2 - 4,5$

e)  $y = -\frac{1}{3}x^2 + 12$

f)  $y = -\frac{1}{2}x^2 + 3$

2. Löse die nachfolgende quadratischen Gleichungen grafisch.

a)  $x^2 - 16 = 0$

b)  $x^2 - 25 = 0$

c)  $3x^2 - 3 = 0$

d)  $2x^2 - 8 = 0$

e)  $x^2 - 5 = 0$

f)  $\frac{1}{2}x^2 - 3 = 0$

3. Forme die Gleichung zunächst um. Löse dann grafisch.

a)  $x^2 = 4$

b)  $x^2 = 3,61$

c)  $2x^2 = 8$

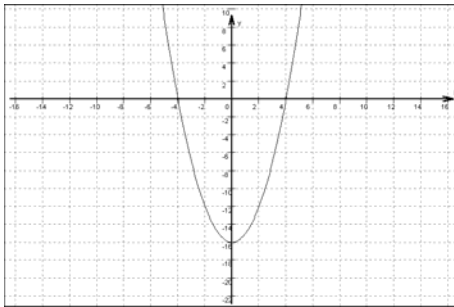
d)  $\frac{1}{2}x^2 = 4,5$

e)  $-\frac{1}{3}x^2 = -3$

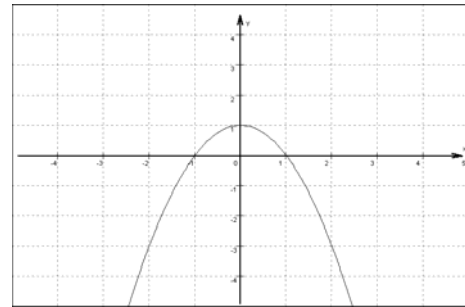
f)  $\frac{1}{4}x^2 = 0,09$

4. In den nachfolgenden Grafiken findest du die zeichnerischen Lösungen von 4 quadratischen Gleichungen. Gib an, um welche Gleichungen es sich handelt.

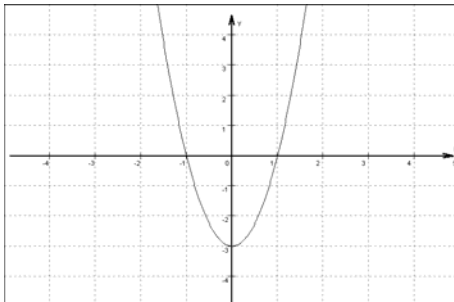
a)



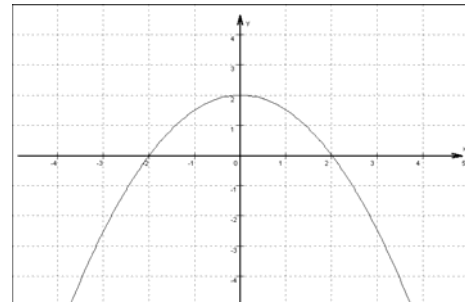
b)



c)



d)



## 2. Gemischt-quadratische Gleichung

5. Zeichne die Grafen der nachfolgenden Funktionen und gib die Nullstellen an.

a)  $y = (x - 2)^2 - 1$

b)  $y = (x + 3)^2 - 4$

c)  $y = -(x + 1)^2 + 1$

d)  $y = \frac{1}{2}(x - 4)^2 - 2$

e)  $y = 3(x + 5)^2 - 3$

f)  $y = 2(x - 1)^2 - 2$

6. Löse die nachfolgenden quadratischen Gleichungen grafisch.

a)  $(x - 2)^2 - 16 = 0$

b)  $(x + 3)^2 - 25 = 0$

c)  $(x - 6)^2 = 0$

d)  $(x - 2,5)^2 = 2,25$

e)  $(x + 6)^2 = 1$

f)  $(x + 4,5)^2 = 12,25$

7. Löse die nachfolgenden quadratischen Gleichungen grafisch.

a)  $0 = -x^2 - 8x - 15$

b)  $0 = 2x^2 - 8x + 6$

c)  $0 = -3x^2 - 6x - 5$

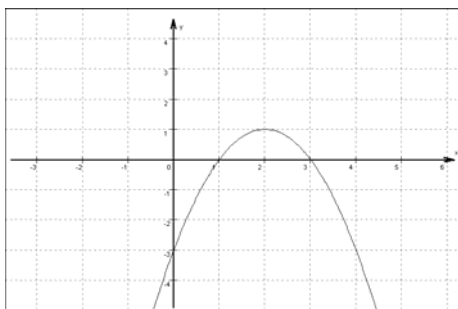
d)  $0 = -3x^2 - 24x - 45$

e)  $0 = \frac{1}{2}x^2 - 3x + 2\frac{1}{2}$

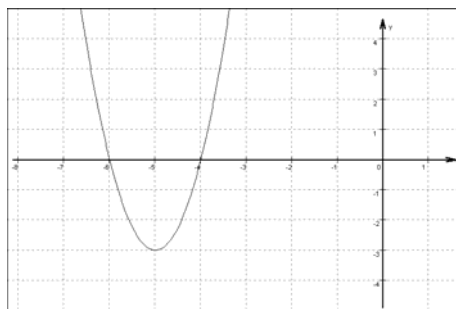
f)  $0 = -\frac{1}{3}x^2 + \frac{2}{3}x + 2\frac{2}{3}$

8. In den nachfolgenden Grafiken findest du die zeichnerischen Lösungen von 4 quadratischen Gleichungen. Gib an, um welche Gleichungen es sich handelt.

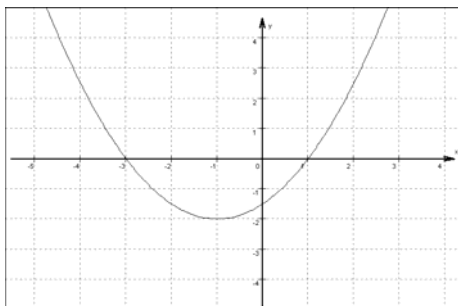
a)



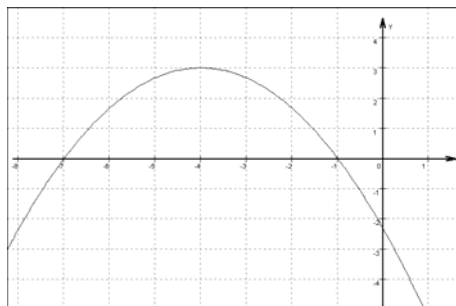
b)



c)



d)



9. Löse die folgenden Gleichungen mit Parabel und Gerade.

a)  $4x^2 = -4x + 3$

b)  $2x^2 = -4x + 6$

c)  $x^2 = -2x - 2$

d)  $3x^2 = 6x$

e)  $4x^2 = 4x - 1$

f)  $2x^2 = -4x - 4$

g)  $\frac{1}{2}x^2 = 2x - 4$

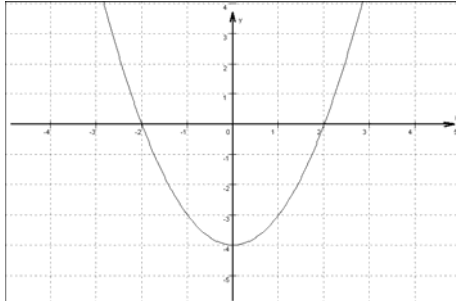
h)  $\frac{1}{2}x^2 = x - 1,5$

i)  $x^2 = -\frac{1}{2}x + \frac{1}{2}$

## 1. Reinquadratische Gleichungen

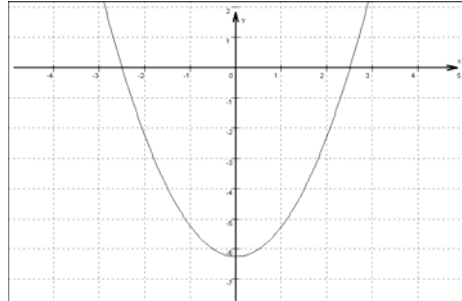
1. Zeichne die Grafen der nachfolgenden Funktionen und gib die Nullstellen an.

a)  $y = x^2 - 4$



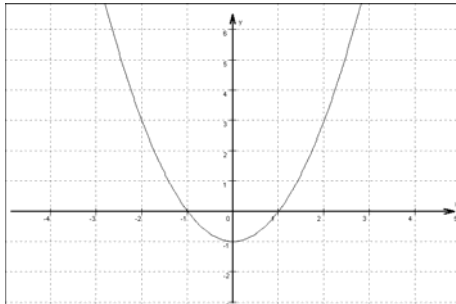
Nullstellen:  $(-2/0)$  und  $(2/0)$

b)  $y = x^2 - 6,25$



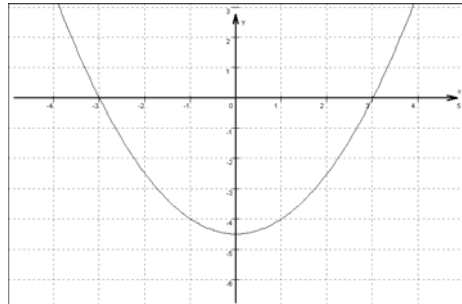
Nullstellen:  $(-2,5/0)$  und  $(2,5/0)$

c)  $y = x^2 - 1$



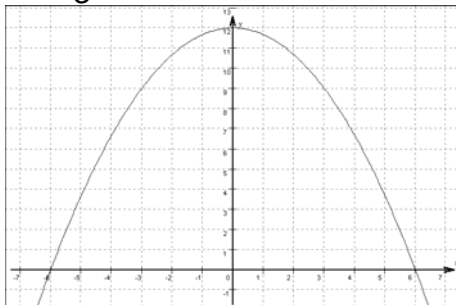
Nullstellen:  $(-1/0)$  und  $(1/0)$

d)  $y = \frac{1}{2}x^2 - 4,5$



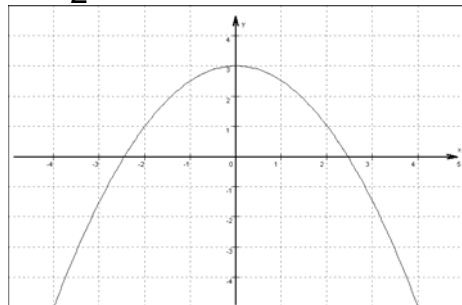
Nullstellen:  $(-3/0)$  und  $(3/0)$

e)  $y = -\frac{1}{3}x^2 + 12$



Nullstellen:  $(-6/0)$  und  $(6/0)$

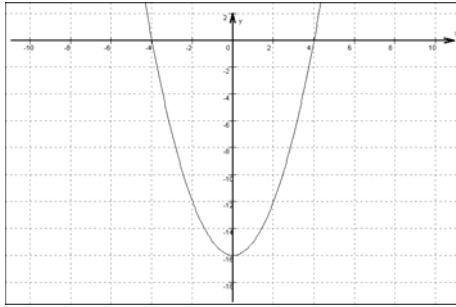
f)  $y = -\frac{1}{2}x^2 + 3$



Nullstellen:  $(-\sqrt{6}/0)$  und  $(\sqrt{6}/0)$

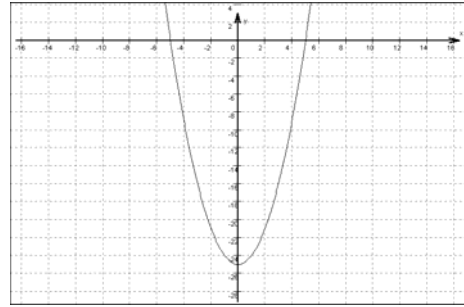
2. Löse die nachfolgende quadratischen Gleichungen grafisch.

a)  $x^2 - 16 = 0$



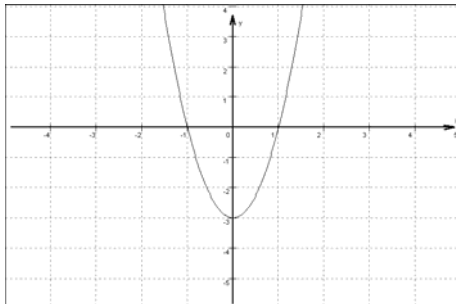
$L = \{-4; 4\}$

b)  $x^2 - 25 = 0$



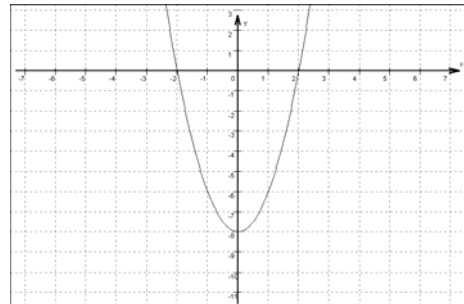
$L = \{-5; 5\}$

c)  $3x^2 - 3 = 0$



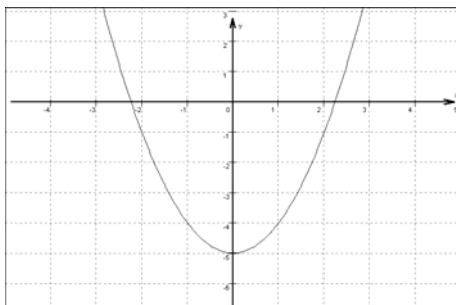
$L = \{-1; 1\}$

d)  $2x^2 - 8 = 0$



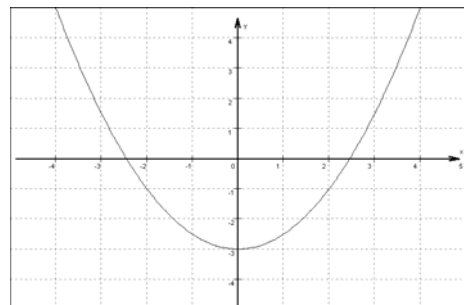
$L = \{-2; 2\}$

e)  $x^2 - 5 = 0$



Nullstellen:  $(-\sqrt{5}/0)$  und  $(\sqrt{5}/0)$

f)  $\frac{1}{2}x^2 - 3 = 0$

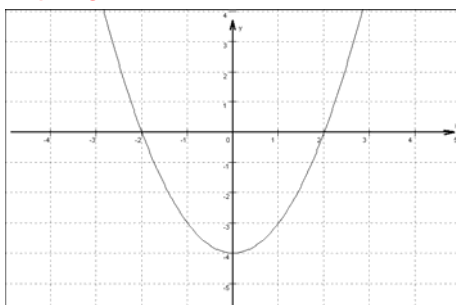


Nullstellen:  $(-\sqrt{6}/0)$  und  $(\sqrt{6}/0)$

3. Forme die Gleichung zunächst um. Löse dann grafisch.

a)  $x^2 = 4$

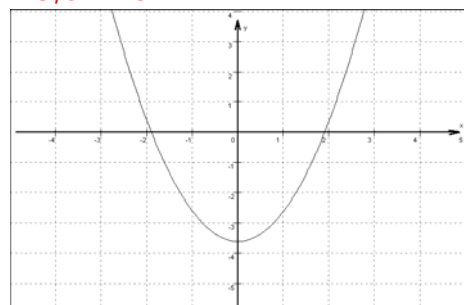
$x^2 - 4 = 0$



$L = \{-2; 2\}$

b)  $x^2 = 3,61$

$x^2 - 3,61 = 0$



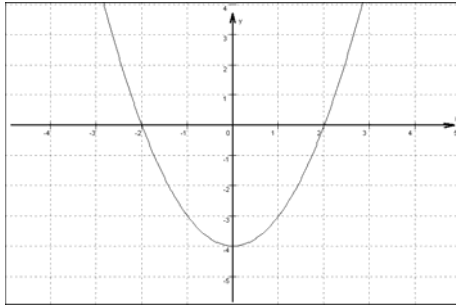
$L = \{-1,9; 1,9\}$

d)  $\frac{1}{2}x^2 = 4,5$

c)  $2x^2 = 8$

$2x^2 - 8 = 0 \quad | : 2$

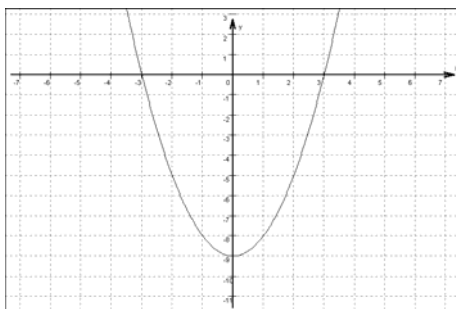
$x^2 - 4 = 0$



$L = \{-2; 2\}$

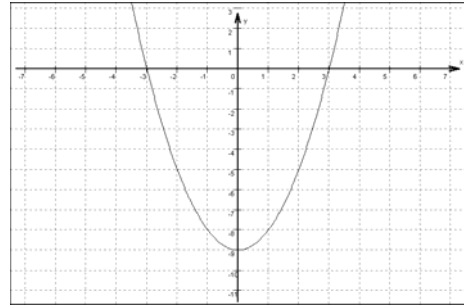
e)  $-\frac{1}{3}x^2 = -3$

$x^2 - 9 = 0$



$L = \{-3; 3\}$

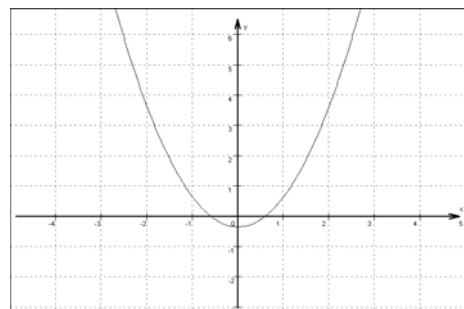
$x^2 - 9 = 0$



$L = \{-3; 3\}$

f)  $\frac{1}{4}x^2 = 0,09$

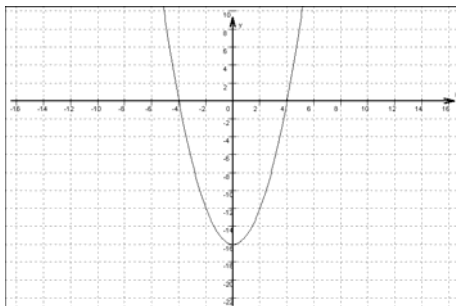
$x^2 - 0,36 = 0$



$L = \{-0,6; 0,6\}$

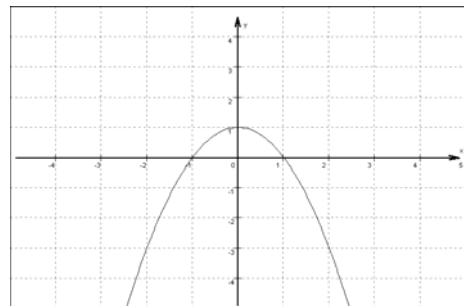
4. In den nachfolgenden Grafiken findest du die zeichnerischen Lösungen von 4 quadratischen Gleichungen. Gib an, um welche Gleichungen es sich handelt.

a)



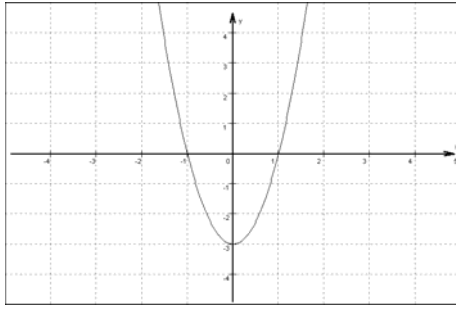
$y = 2x^2 - 8$

b)



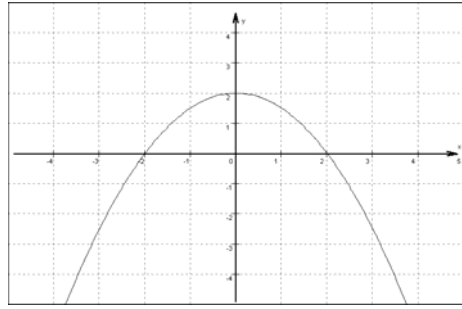
$y = -x^2 + 1$

c)



$$y = 3x^2 - 3$$

d)

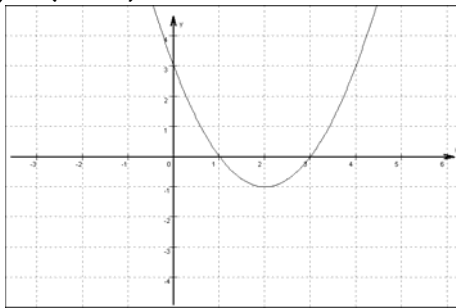


$$y = -\frac{1}{2}x^2 + 2$$

## 2. Gemischt-quadratische Gleichung

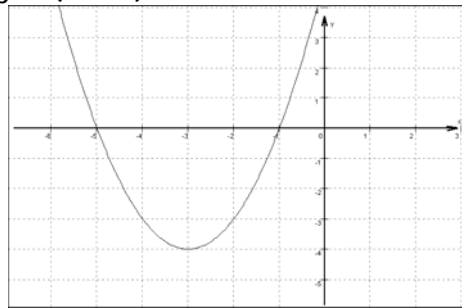
5. Zeichne die Grafen der nachfolgenden Funktionen und gib die Nullstellen an.

a)  $y = (x - 2)^2 - 1$



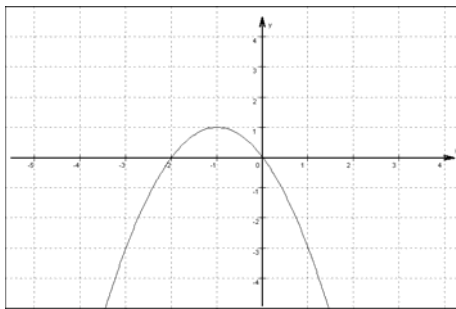
Nullstellen: (1/0) und (3/0)

b)  $y = (x + 3)^2 - 4$



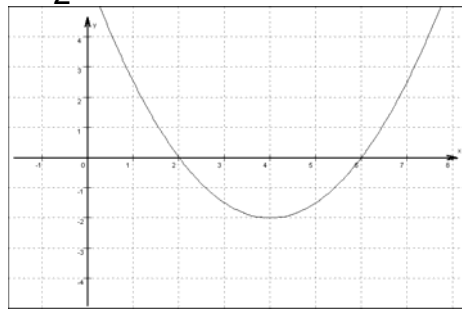
Nullstellen: (-1/0) und (-5/0)

c)  $y = -(x + 1)^2 + 1$



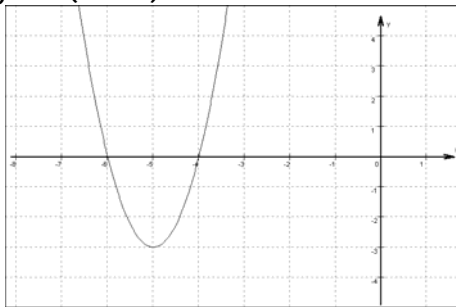
Nullstellen: (0/0) und (-2/0)

d)  $y = \frac{1}{2}(x - 4)^2 - 2$



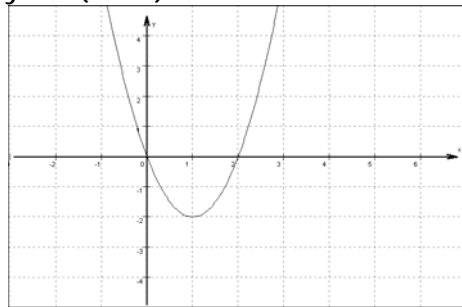
Nullstellen: (2/0) und (6/0)

e)  $y = 3(x + 5)^2 - 3$



Nullstellen: (-6/0) und (-4/0)

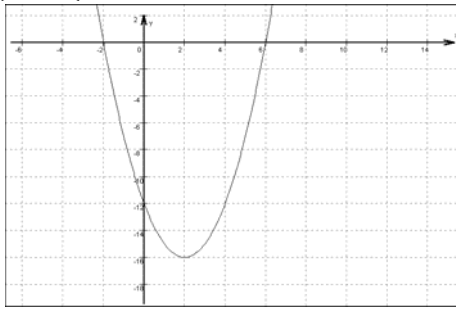
f)  $y = 2(x - 1)^2 - 2$



Nullstellen: (0/0) und (2/0)

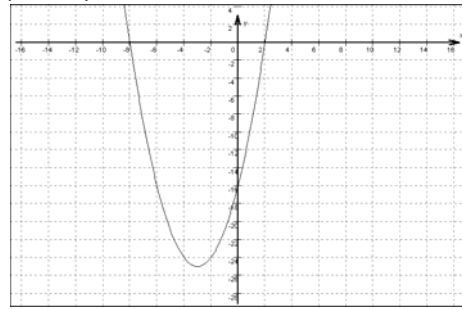
6. Löse die nachfolgenden quadratischen Gleichungen grafisch.

a)  $(x - 2)^2 - 16 = 0$



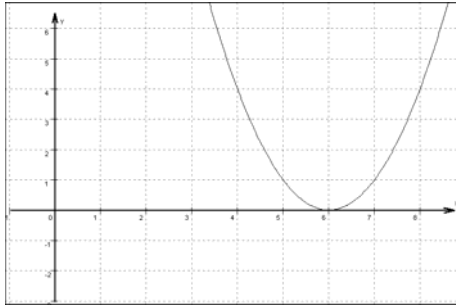
$L = \{-1; 3\}$

b)  $(x + 3)^2 - 25 = 0$



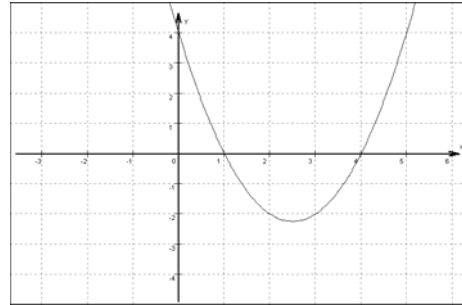
$L = \{-8; 2\}$

c)  $(x - 6)^2 = 0$



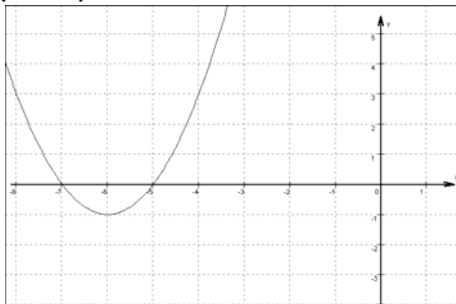
$L = \{6\}$

d)  $(x - 2,5)^2 = 2,25$



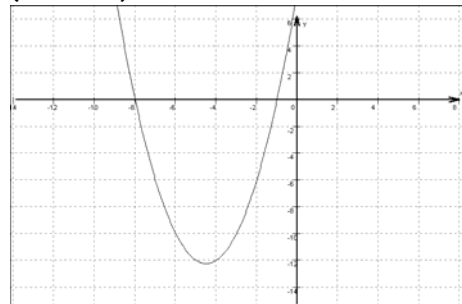
$L = \{1; 4\}$

e)  $(x + 6)^2 = 1$



$L = \{-5; -7\}$

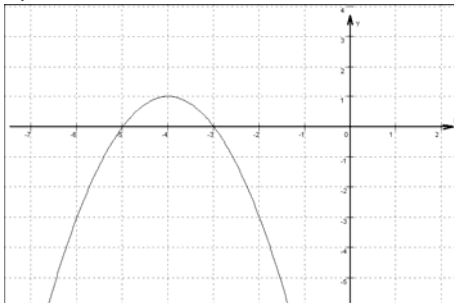
f)  $(x + 4,5)^2 = 12,25$



$L = \{-1; -8\}$

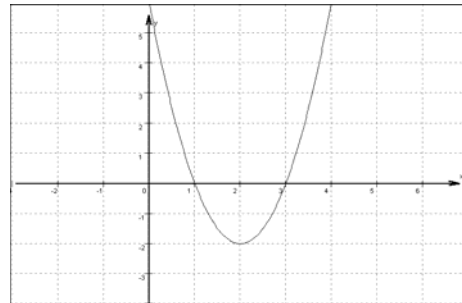
7. Löse die nachfolgenden quadratischen Gleichungen grafisch.

a)  $0 = -x^2 - 8x - 15$



$L = \{-3; -5\}$

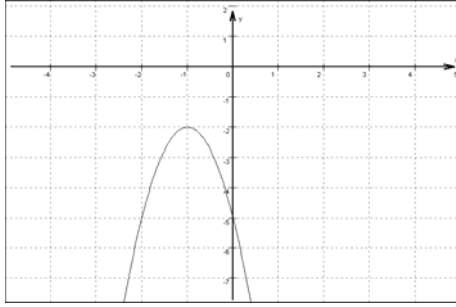
b)  $0 = 2x^2 - 8x + 6$



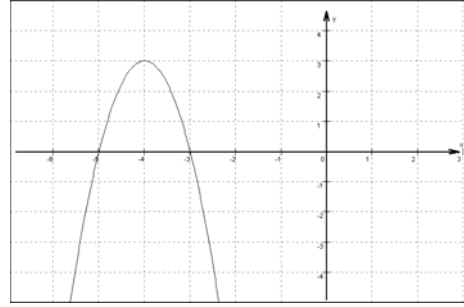
$L = \{1; 3\}$

d)  $0 = -3x^2 - 24x - 45$

c)  $0 = -3x^2 - 6x - 5$

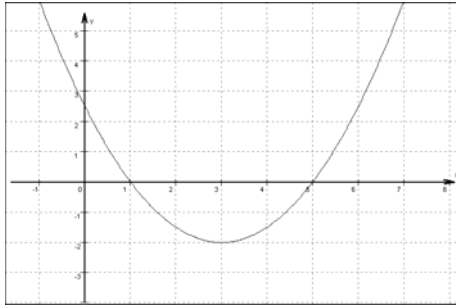


$L = \{ \}$



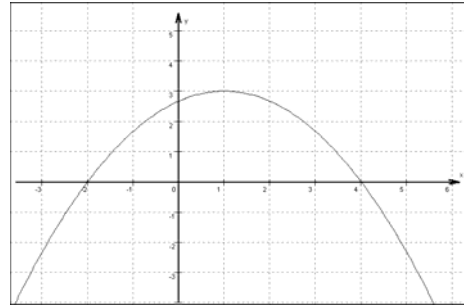
$L = \{ -3; -5 \}$

e)  $0 = \frac{1}{2}x^2 - 3x + 2\frac{1}{2}$



$L = \{ 1; 5 \}$

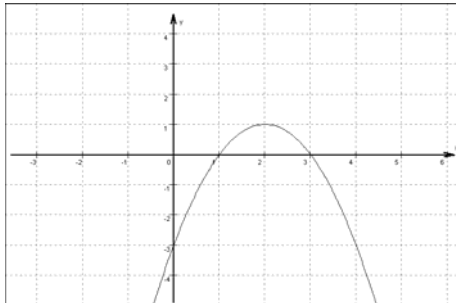
f)  $0 = -\frac{1}{3}x^2 + \frac{2}{3}x + 2\frac{2}{3}$



$L = \{ -2; 4 \}$

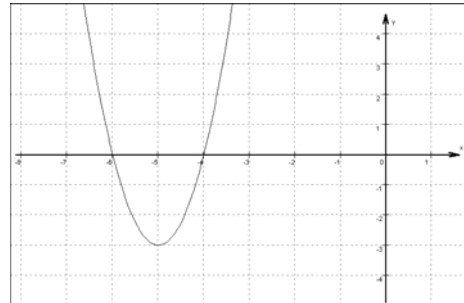
8. In den nachfolgenden Grafiken findest du die zeichnerischen Lösungen von 4 quadratischen Gleichungen. Gib an, um welche Gleichungen es sich handelt.

a)



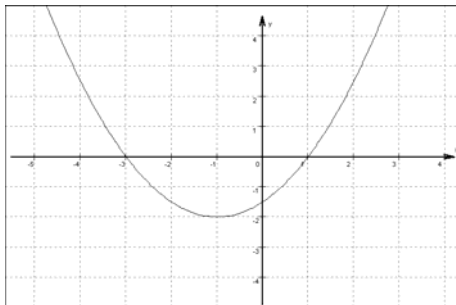
$0 = x^2 - 4x + 5$

b)



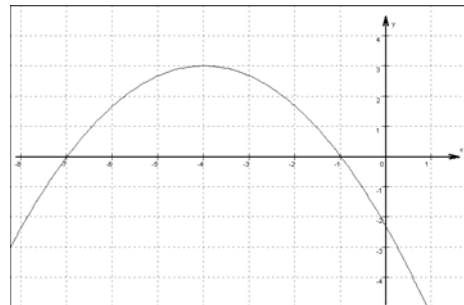
$0 = 3x^2 - 30x + 72$

c)



$0 = \frac{1}{2}x^2 + x - 1\frac{1}{2}$

d)

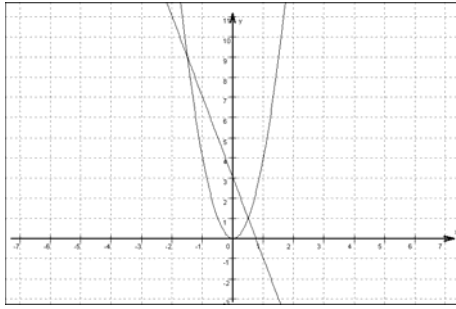


$0 = -\frac{1}{3}x^2 - \frac{8}{3}x - \frac{7}{3}$



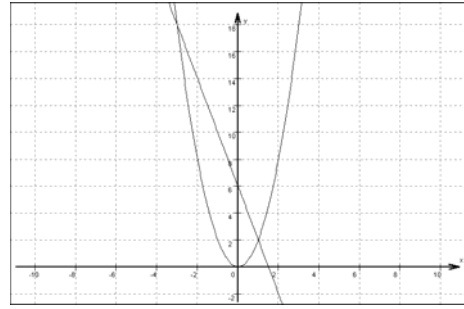
9. Löse die folgenden Gleichungen mit Parabel und Gerade.

a)  $4x^2 = -4x + 3$



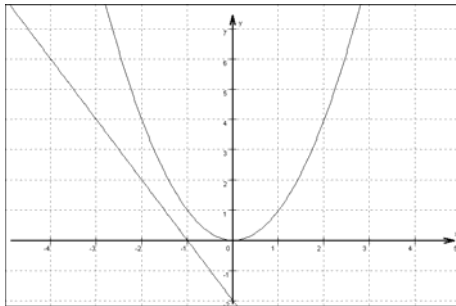
$L = \{-1,5; 0,5\}$

b)  $2x^2 = -4x + 6$



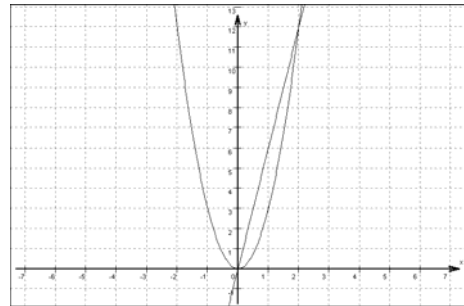
$L = \{-1; 3\}$

c)  $x^2 = -2x - 2$



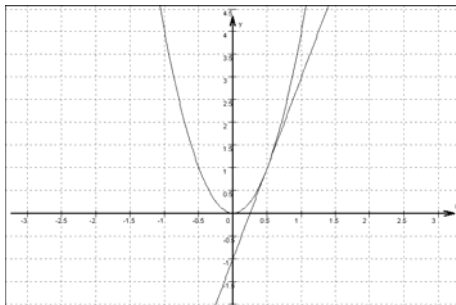
$L = \{ \}$

d)  $3x^2 = 6x$



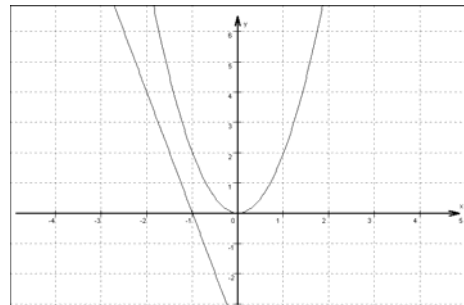
$L = \{0; 2\}$

e)  $4x^2 = 4x - 1$



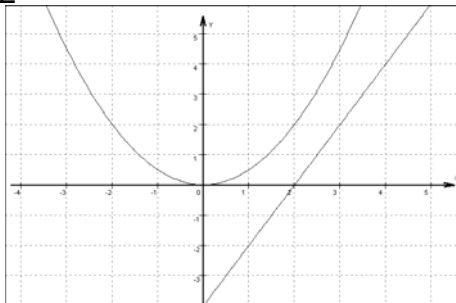
$L = \{0,5\}$

f)  $2x^2 = -4x - 4$



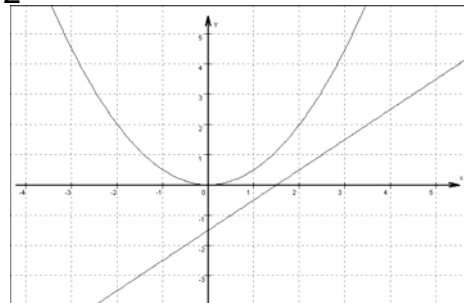
$L = \{ \}$

g)  $\frac{1}{2}x^2 = 2x - 4$



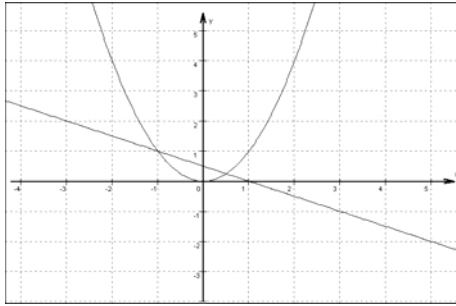
$L = \{ \}$

h)  $\frac{1}{2}x^2 = x - 1,5$



$L = \{ \}$

$$i) x^2 = -\frac{1}{2}x + \frac{1}{2}$$



$$L = \{ -1; 0,5 \}$$