Chapter 8 BLM Answers

BLM 8–4 Section 8.1 Extra Practice

1. Point (1, –3):

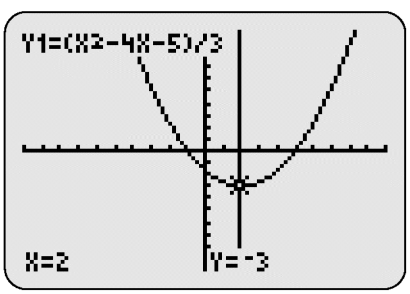
$LS = x^2 - 4x - y$ $\quad$ $RS = 0$
$= (1)^2 - 4(1) - (-3)$
$= 0$
LS = RS
$LS = x - y - 4$ $\quad$ $RS = 0$
$= 1 - (-3) - 4$
$= 0$
LS = RS
Therefore, point (1, –3) is a solution.

Point (4, 0):
$LS = x^2 - 4x - y$ $\quad$ $RS = 0$
$= (4)^2 - 4(4) - (0)$
$= 0$
LS = RS
$LS = x - y - 4$ $\quad$ $RS = 0$
$= 4 - (0) - 4$
$= 0$
LS = RS
Therefore, point (4, 0) is a solution.

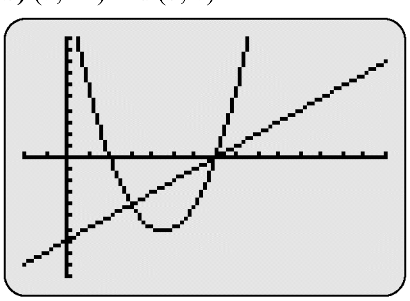
2. a) (–2, –4) and (0, 0);
$y = x^2 + 4x$
$y = -x^2$

b) (–1, 2) and (–4, 8);
$y = 2x^2 + 8x + 8$
$y = -2x$

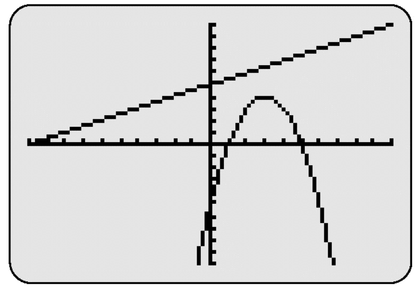
3. a) (2, –3)



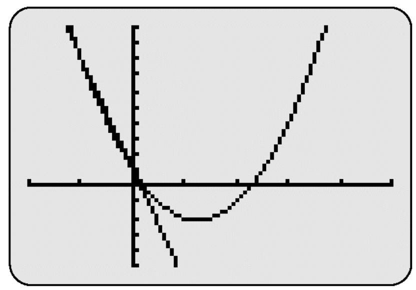
b) (3, –4) and (7, 0)



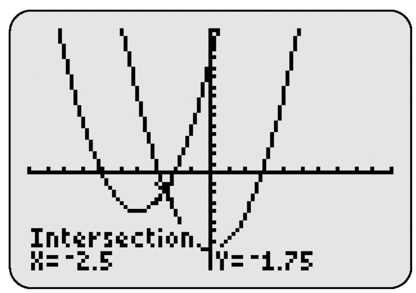
c) no solution



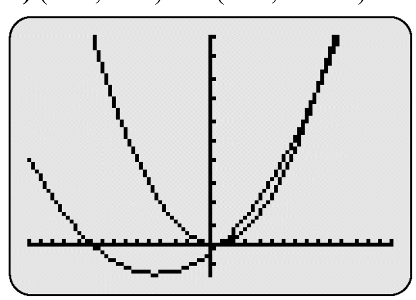
d) (–1, 8) and (0, 1)



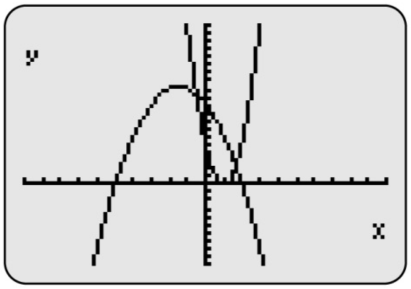
4. a) (–2.50, –1.75)



b) (1.00, 2.00) and (9.00, 154.00)

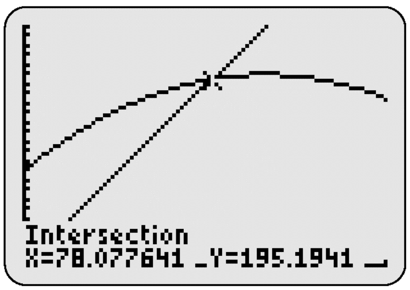


c) (–0.50, 11.25) and (1.67, 2.22)



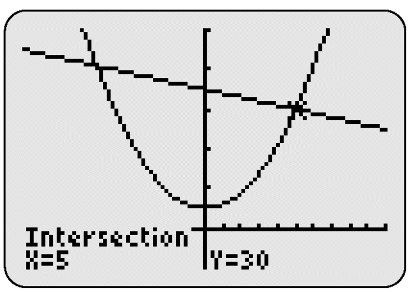
d) no solution

5. 78 items, or \$195



6. a) x = Max's age: $x + y = 35$
y = father's age: $x^2 + 5 = y$

b)



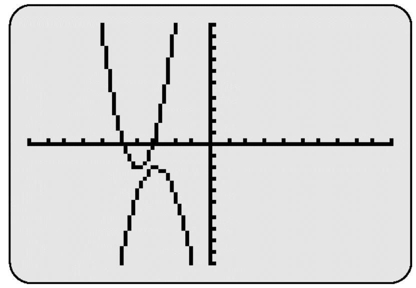
The two solutions to the system are (–6, 41) and (5, 30). (–6, 41) is not meaningful because Max cannot be –6 years old.

c) Max is 5 and his father is 30.

BLM 8–5 Section 8.2 Extra Practice

1. Point (–1, 11):

LS = $2x + y$ RS = 9
= $2(-1) + 11$
=9
LS = RS
LS = $2x^2 - 4x - y$ RS = –5
= $2(-1)^2 - 4(-1) - 11$
= –5
LS = RS
Therefore, (–1, 11) is a solution.
Point (2, 5):
LS = $2x + y$ RS = 9
= $2(2) + 5$



= 9
LS = RS
LS = $2x^2 - 4x - y$ RS = –5
= $2(2)^2 - 4(2) - 5$
= –5
LS = RS
Therefore, (2, 5) is a solution.

2. Point (–1, –4):
LS = y RS = $x^2 + 2x - 3$
= –4 = $(-1)^2 + 2(-1) - 3$
= –4
LS = RS
LS = y RS = $-x^2 - 2x - 5$
= –4 = $-(-1)^2 - 2(-1) - 5$
= –4
LS = RS
Therefore, (–1, –4) is a solution.

3. a) (3, 7) and (4, 9)
Verify:
Point (3, 7)
LS = y RS = $2(3) + 1$
= 7 = 7
LS = RS
LS = y RS = $(3)^2 - 5(3) + 13$
= 7 = 7
LS = RS
Therefore, (3, 7) is a solution.
Point (4, 9)
LS = y RS = $2(4) + 1$
= 9 = 9
LS = RS
LS = y RS = $(4)^2 - 5(4) + 13$
= 9 = 9
LS = RS
Therefore, (4, 9) is a solution.

b) $\left(\frac{-3}{2}, \frac{17}{2}\right)$ and (2, –2)
Verify:

Point $\left(\frac{-3}{2}, \frac{17}{2}\right)$

LS $= (3)\left(\frac{-3}{2}\right) + \frac{17}{2} - 4$ RS = 0

$= \frac{-9}{2} + \frac{17}{2} - 4$

$= 0$

LS = RS

LS $= (2)\left(\frac{-3}{2}\right)^2 - (4)\left(\frac{-3}{2}\right) - \left(\frac{17}{2}\right) - 2$ RS = 0

$= \frac{18}{4} + \frac{24}{4} - \frac{34}{4} - \frac{8}{4}$

$= 0$

LS = RS

Therefore, $\left(\frac{-3}{2}, \frac{17}{2}\right)$ is a solution.

Point (2, –2):

LS = 3(2) + (–2) – 4 RS = 0

= 0

LS = RS

LS = $2(2)^2 - 4(2) - (-2) - 2$ RS = 0

= 0

LS = RS

Therefore, (2, –2) is a solution.

c) (–4, 10) and (2, 4)

Verify:

Point (–4, 10)

LS = y RS = $-(-4)^2 - 3(-4) + 14$

= 10 = 10

LS = RS

LS = y RS = $3(-4)^2 + 5(-4) - 18$

= 10 = 10

LS = RS

Therefore, (–4, 10) is a solution.

Point (2, 4)

LS = y RS = $-(2)^2 - 3(2) + 14$

= 4 = 4

LS = RS

LS = y RS = $3(2)^2 + 5(2) - 18$

= 4 = 4

LS = RS

Therefore, (2, 4) is a solution.

d) (5, 0) and (–2, 7)

Verify:

Point (5, 0)

LS = 4(5) + 0 + 5 RS = 5^2

= 25 = 25

LS = RS

LS = 5^2 RS = 5(5) + 2(0)

= 25 = 25

LS = RS

Therefore, (5, 0) is a solution.

Point (–2, 7)

LS = 4(–2) + 7 + 5 RS = $(-2)^2$

= 4 = 4

LS = RS

LS = $(-2)^2$ RS = 5(–2) + 2(7)

= 4 = 4

LS = RS

Therefore, (–2, 7) is a solution.

4. a) $\left(-1, \frac{10}{3}\right)$ and $\left(\frac{1}{3}, \frac{26}{9}\right)$ **b)** no solution

c) (0, 2) and (3, 1.5) **d)** $\left(\frac{-1}{4}, \frac{63}{16}\right)$ and (5, 0)

5. a) (3, 18)

b) (–1.62, –0.21) and (0.62, 0.54)

6. a) $k = 7$ **b)** (0, –7)

7. a) $k > -4$ **b)** $k = -4$ **c)** $k < -4$

8. a) $y = -1(x + 4)^2 + 4$ and $y = (x - 1)^2 - 9$

b) (–2, 0) and (–1, –5)

9. a) perimeter: $2(3x) + 2(x + 5) = y$;

area: $(3x)(x + 5) = 3y$

b) (5, 50) and (–2, –6)

c) The only possible solution is (5, 50). You cannot have a negative perimeter or area.

d) $x = 5$; perimeter = 50; area = 150 units^2