

BIG REVISION WS for FY Tracking Test 2

Name:

Class:

Date:

1) Simplify the expression

a) $-5z - 6z + 3z$

c) $x + y + x$

e) $-6c + 4c - 2c - 3c - 3c$

g) $(5b^7 + 7b^4 + 3) - (2b^7 + 4b^4 + 2)$

i) $(-6xy)^2$

k) $(2b^2d^2)^2$

b) $-9xs + 2sx - 5xs$

d) $b + b - b + b - b$

f) $3y^5 + 9y^6 + 2y^5 + 7 + 8y^6$

h) $(6z^9 + 4z^7 + 2) - (2z^9 + 2z^7 + 6)$

j) $(-5bd)^2$

2) Simplify the expression completely

a) $-a^2 - a^2 + b - b$

b) $-7z^2 + 8z^2 + 11y + y$

3) Expand

a) $8a(9a + 4)$

c) $7z(4z - 3)$

e) $7 + 2c(2c - 9)$

g) $2 - 2b(-11 + 6b)$

i) $-3b(1 + 2b) - 3$

b) $9a(6a - 1)$

d) $7y(5 + y^2)$

f) $5 + 7b(-1 + 6b)$

h) $7b(4b - 11) + 12$

4) Expand and simplify

a) $9x + 4x(-1 + 2x)$

b) $10x + 8x(-11 + 8x)$

5) Expand and simplify completely

a) $5(2 + 5b) + 4(2b + 3)$

c) $-4(1 - 2z) - 2(-4z + 5)$

e) $(x + 9)(4 + x)$

g) $(-5y + 5)(4y + 2)$

i) $(-7 + 3a)(5 - 4a)$

k) $(2z - 9)^2$

m) $(4a + 5)(5a - 5)(2a + 4)$

b) $2(2y + 8) + 3(-6y - 1)$

d) $(b + 6)(b + 2)$

f) $(6z + 6)(6z - 5)$

h) $(7 + 2x)(3 + 2x)$

j) $(3a + 1)^2$

l) $(2b - 1)(b - 2)(b + 6)$

6) Factorise

a) $7a^2 + 7ax - 21a$

c) $3a^2 + 3ab - 9a$

b) $-18a^3 - 81a^2 - 27ax$

7) Factorise completely

$$15c + 25$$

a) $2z + 3a$ when $z = 6$ and $a = 8$

b) $7y - 2z$ when $z = -4$ and $y = -1$

d) $3p + 4x + 5a^2$ when $x = 4$, $a = 2$ and $p = 4$

9) Find the value of the formula using the numbers given

a) $A = 5b + 7c$ when $b = -1$ and $c = -1$

10) The area of a circle can be found using the formula

$$A = \pi r^2$$

Find the area of a circle with radius 5 cm. Leave your answer to one decimal place.

12) The average speed formula is speed = distance \div time. Find the time it took to travel 217 km at 108 km/h. Round your answer to the nearest whole number.

8) Find the value of the expression using the numbers given

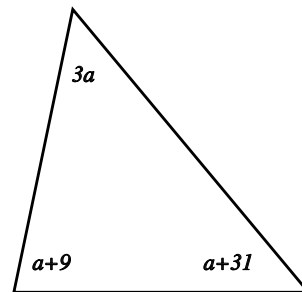
c) $2c - 8z - 4a$ when $c = 6$, $z = 3$ and $a = 1$

e) $3a^2 - 2c + 2t^2$ when $c = 9$, $t = 9$ and $a = -8$

b) $S = 3(-5p - 4r + 5s)$ when $r = 4$, $p = -1$ and $s = -1$

11) The volume of a cylinder can be found using the formula $V = \pi r^2 h$. Find the volume of a cylinder with radius 8 metres and height 7 metres. Round your answer to nearest whole number.

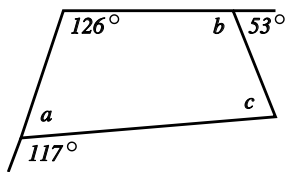
13) The sizes, in degrees, of the angles of the triangle below are $3a$, $a+9$ and $a+31$.



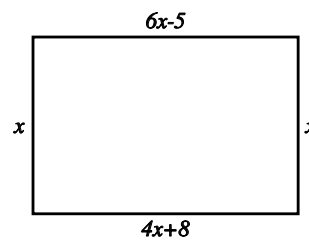
a) Use this information to write down an equation in terms of a .

b) Use your answer to part a) to work out the value of a .

14) Find the value of a , b and c in the following shape.



15) The diagram below shows a rectangle. All measurements are in centimetres.



Work out the value of x .

16) Solve the equation

a) $6z + 7 = 25$

c) $-9x - 5 = -14$

e) $57 = 10x - 23$

g) $-4c + 7 = -8 - 9c$

i) $141 + 3c = -5c + 69$

k) $10a - 75 = -27 + 2a$

b) $9y + 7 = -11$

d) $21 = 7 + 2y$

f) $146 = -21c - 1$

h) $10z - 121 = -58 + 3z$

j) $5 + 8x = 2x + 53$

17) Solve the following equation, leaving your answer as a fraction

a) $-4 - 9x = -27 + 7x$

b) $-7c + 9 = 1 + 9c$

18) Expand and solve the equation

a) $-2(-2c - 3) + 12 = 30$

b) $11 + 2(-2c - 5) = 33$

c) $-2(5 - 4x) + 8 = 30$

d) $4(4z - 1) = -22 - 2z$

e) $-2(-5 - 3z) = 32 - 5z$

f) $-12 = 3(2 + a) - 3(2a - 1)$

g) $5(-6 + 4b) = -2(93 + 3b)$

h) $-4(5y + 13) = -3(8 + 2y)$

19) I'm thinking of a number. I subtract 4 and then triple the result. The answer is 6.

What is the number I am thinking of?

20) I'm thinking of a number. I add 5 and then multiply the result by 2. The answer is 18.

What is the number I am thinking of?

21) I'm thinking of a number. I add 4 and then halve the result. The answer is 4.

What is the number I am thinking of?

22) Make the letter in brackets the subject of the formula

a) $7x + b = 11A + 10C$ (b)

b) $H - x + c = S$ (c)

c) $7b + y = 5u - 4D$ (b)

23) Solve the following inequality

a) $7y + 2 \geq -5$

b) $-x + 2 > 7$

c) $-z - 2 < -5$

d) $3y - 4 > -1$

e) $-7 \leq 5y + 3$

f) $9y - 1 < 5y + 3$

g) $3(y - 9) \geq 7(y - 5)$

24) Find the values of A and B by rearranging the following inequality into the form $A \leq x \leq B$.

a) $-8 \leq 2x + 2 \leq -2$

b) $-8 \leq -5 + 3x \leq -5$

c) $-5 \leq 3 - 2x \leq -3$

25) Find the next 2 terms

a) -41, -38, -35, -32, -29,

b) -3, 0, 3, 6, 9,

c) 7, 9, 11, 13, 15,

d) -3, -6, -9, -12, -15,

e) 29, 27, 25, 23, 21,

f) -3, -6, -9, -12, -15,

g) 4, 10, 16, 22, 28,

26) Write the term-to-term rule for the sequence below.

a) -88, -94, -100, -106, -112

b) 9, 15, 21, 27, 33

c) -36, -33, -30, -27, -24

d) -13, -19, -25, -31, -37

27) a) Write the next two numbers in the sequence below.

-41, -38, -35, -32, -29

28) a) Write the next two numbers in the sequence below.

10, 14, 18, 22, 26

b) Write the term-to-term rule for finding the next number in the sequence above.

b) Write the term-to-term rule for finding the next number in the sequence above.

29) a) Write the next two numbers in the sequence below.

-11, -17, -23, -29, -35

b) Write the term-to-term rule for finding the next number in the sequence above.

a) 9, 14, 19, 24, 29

b) 111, 108, 105, 102, 99

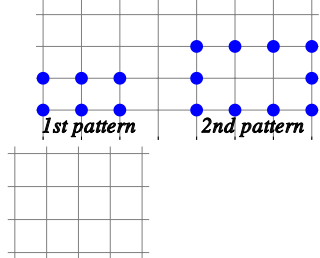
31) a) Write the next two numbers in the sequence below.

8, 13, 18, 23, 28

b) Explain how you found your answer.

c) Explain why 104 is not a term of the sequence.

33) a) Draw the next pattern in the sequence using the empty grid.

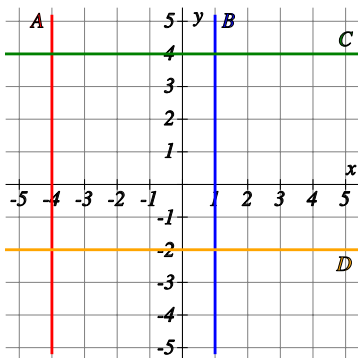


b) The table below shows the number of dots used to make each pattern. Complete the table.

Pattern number	1	2	3	4	5
Number of dots	6				

c) Describe the term-to-term rule.

35) Find the equations of the following lines.



a) $y = -10x + 5$

b) $y = 3x + 7$

d) $y = -4x - 9$

f) $y = -2 + x$

30) Find a formula for the n^{th} term of the sequence

32) a) Find a formula for the n^{th} term of the sequence

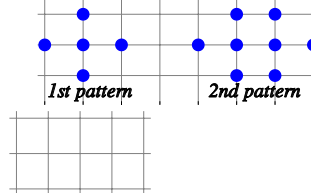
18, 27, 36, 45, 54

Finley says that 100 is a term in the sequence.

b) Is Finley correct?

c) Explain your answer.

34) a) Draw the next pattern in the sequence using the empty grid.



b) The table below shows the number of dots used to make each pattern. Complete the table.

Pattern number	1	2	3	4	5
Number of dots	5				

c) Find the n^{th} term.

36) Write down the gradient and the y intercept of the line

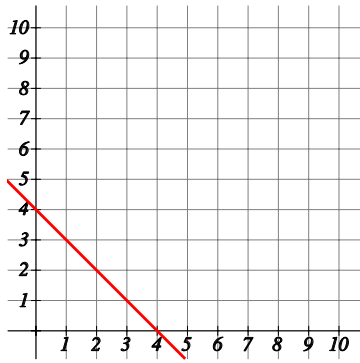
c) $y = -4x + 10$

e) $y = 4 - 3x$

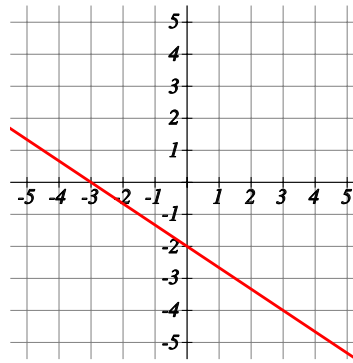
g) $y = \frac{5x}{3} - 7$

h) $y = 4 + \frac{4x}{3}$

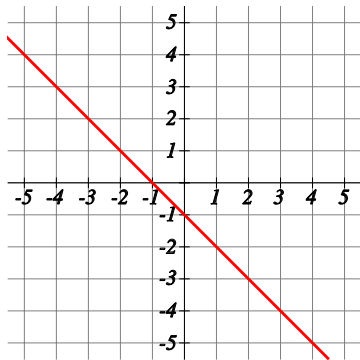
37) Find the equation of the following line.



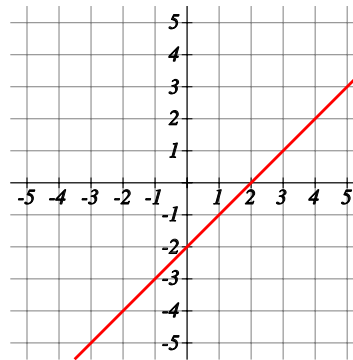
38) Find the equation of the following line.



39) Find the equation of the following line.



40) Find the equation of the following line.



41) Find the equation of the line given the following two points

a) $(-9, 21)$ and $(-5, 9)$

b) $(-8, 25)$ and $(7, -35)$

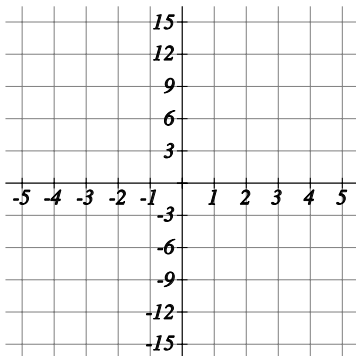
42) Find the equation of the line given the following information

a) gradient is 3 and $(-3, -5)$ lies on this line

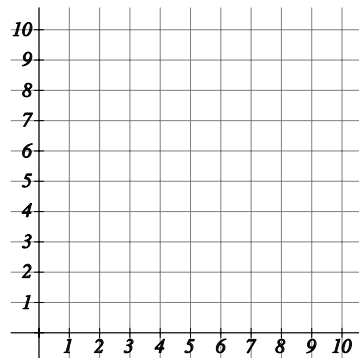
b) gradient is -2 and $(9, -19)$ lies on this line

43) Complete the table for $y = 3x + 2$ and draw its graph on the grid below.

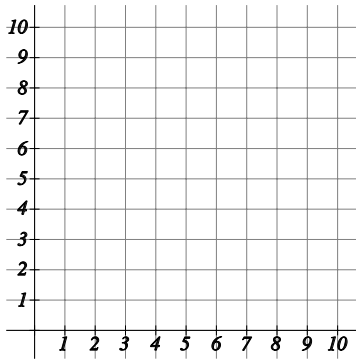
x	0	1	2	3	4	5
y	2		8		14	



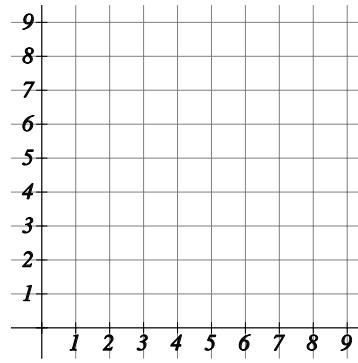
44) Draw a line to show $y = 3x + 2$ on the grid below.



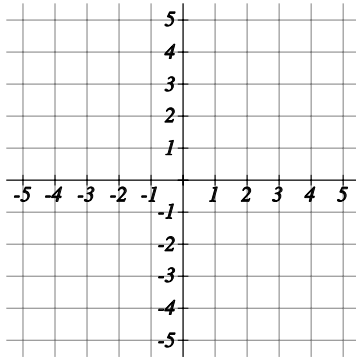
45) Draw a line to show $y = 2x$ on the grid below.



46) Draw a line to show $2x + 7y = 16$ on the grid below.



47) Draw a line to show $4x - 2y = 8$ on the grid below.

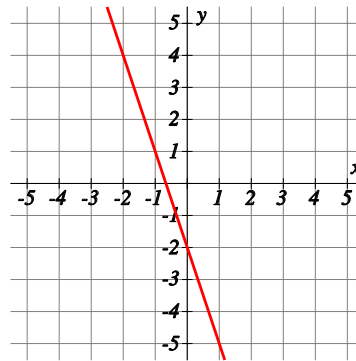


48) Find an equation of a line that is parallel to $y = -3x - 3$ and passes through the point $(1, -2)$.

- A. $y = -3x + 11$ B. $y = -3x + 1$
C. $y = -3x + 14$ D. $y = -3x + 19$

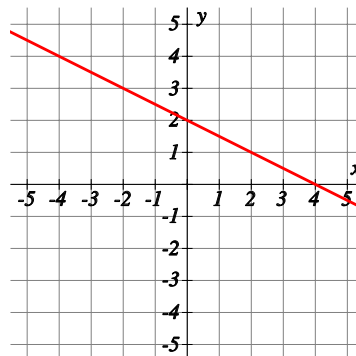
49) Find an equation of a line that is parallel to $y = 5x - 6$ and passes through the point $(0, 13)$.

50) Find the equation of a line that is parallel to the line given below and passes through the point $(1, -2)$.



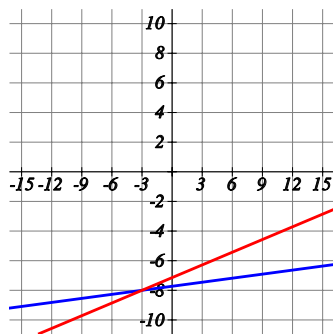
51) Find the equation of a line that is perpendicular to $y = -4x - 5$ and passes through the point $(-4, -3)$.

52) Find the equation of a line that is perpendicular to the line given below and passes through the point $(-2, 3)$.



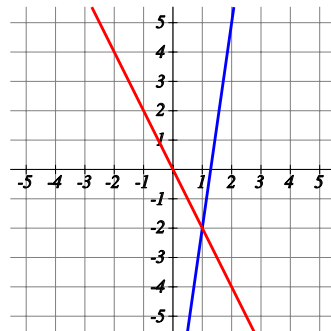
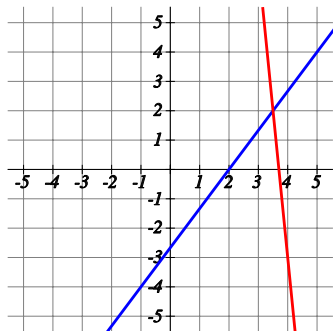
53) Find the equation of a line that is perpendicular to $y = -2x + 1$ and passes through the point $(2, -3)$.

54) Write down approximate coordinates which show the solution to the following graphs of simultaneous equations.



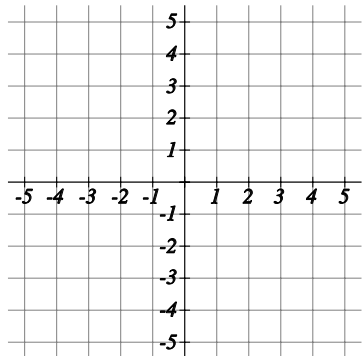
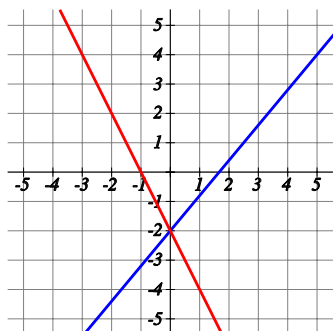
55) Write down the coordinates which show the solution to the following graphs of simultaneous equations.

56) Write down the x and y values of the solutions for the following graphs of simultaneous equations.

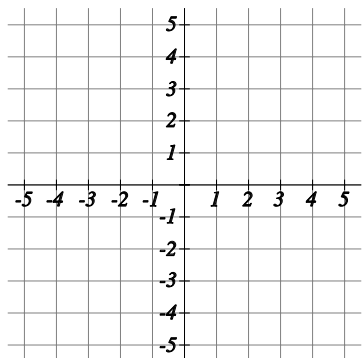


57) Write down the x and y values of the solutions for the following graphs of simultaneous equations.

58) Solve the simultaneous equations $y = -x - 5$ and $y = 3x - 1$ using the grid below.



59) Solve the simultaneous equations $y = -2x - 3$ and $y = -3x - 5$ using the grid below.



Solutions for the assessment BIG REVISION WS for FY Tracking Test 2

- 1) a) $-8z$
b) $-12sx$
c) $y + 2x$
d) b
e) $-10c$
f) $5y^5 + 17y^6 + 7$
g) $3b^7 + 3b^4 + 1$
h) $4z^9 + 2z^7 - 4$
i) $36x^2y^2$
j) $25b^2d^2$
k) $4b^4d^4$
- 2) a) $-2a^2$
b) $z^2 + 12y$
- 3) a) $72a^2 + 32a$
b) $54a^2 - 9a$
c) $28z^2 - 21z$
d) $35y + 7y^3$
e) $4c^2 - 18c + 7$
f) $5 - 7b + 42b^2$
g) $2 + 22b - 12b^2$
h) $28b^2 - 77b + 12$
i) $-3 - 3b - 6b^2$
- 4) a) $5x + 8x^2$
b) $-78x + 64x^2$
- 5) a) $33b + 22$
b) $-14y + 13$
c) $16z - 14$
d) $b^2 + 8b + 12$
e) $x^2 + 13x + 36$
f) $36z^2 + 6z - 30$
g) $-20y^2 + 10y + 10$
h) $4x^2 + 20x + 21$
i) $-12a^2 + 43a - 35$
j) $9a^2 + 6a + 1$
k) $4z^2 - 36z + 81$
l) $2b^3 + 7b^2 - 28b + 12$
m) $40a^3 + 90a^2 - 30a - 100$
- 6) a) $7a(a + x - 3)$
b) $9a(-2a^2 - 9a - 3x)$
c) $3a(a + b - 3)$
- 7) $5(3c + 5)$
- 8) a) 36
b) 1
c) -16
d) 48
e) 336
- 9) a) -12
b) -48
- 10) $78.5cm^2$
11) $1407 m^3$
- 12) 2 hours
13) a) $5a + 40$, b) $a = 28^\circ$
- 14) $a = 63^\circ$, $b = 127^\circ$, $c = 44^\circ$
15) $x = 6.5 \text{ cm}$
- 16) a) 3
b) -2
c) 1
d) 7
e) 8
f) -7

g) -3

h) 9

i) -9

j) 8

k) 6

17) a) $1\frac{7}{16}$

b) $\frac{1}{2}$

18) a) 3

b) -8

c) 4

d) -1

e) 2

f) 7

g) -6

h) -2

19) 6

20) 4

21) 4

22) a) $b = 11A + 10C - 7x$

b) $c = S - H + x$

c) $b = \frac{5u - 4D - y}{7}$

23) a) $y \geq -1$

b) $x < -5$

c) $z > 3$

d) $y > 1$

e) $y \geq -2$

f) $y < 1$

g) $y \leq 2$

24) a) $A = -5$ and $B = -2$

b) $A = -1$ and $B = 0$

c) $A = 3$ and $B = 4$

25) a) -26, -23

b) 12, 15

c) 17, 19

d) -18, -21

e) 19, 17

f) -18, -21

g) 34, 40

26) a) subtract 6

b) add 6

c) add 3

d) subtract 6

27) a) -26, -23 b) add 3

28) a) 30, 34 b) add 4

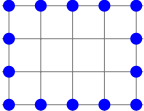
29) a) -41, -47 b) subtract 6

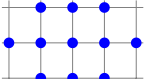
30) a) $5n + 4$

b) $114 - 3n$

31) a) 33, 38 b) add 5 each time, c) a sensible answer justified by equating to nth term and not get a whole number solution or something similar

32) a) $9n + 9$, b) no, c) a sensible answer related to equating to nth term and not getting a whole number solution

33) a)  b) 10, 14, 18, 22 c) add 4

34) a)  b) 8, 11, 14, 17 c) $3n + 2$

35) A: $x = -4$, B: $x = 1$, C: $y = 4$ and D: $y = -2$

36) a) Gradient = -10 and y intercept = 5

c) Gradient = -4 and y intercept = 10

e) Gradient = -3 and y intercept = 4

g) Gradient = $\frac{5}{3}$ and y intercept = -7

b) Gradient = 3 and y intercept = 7

d) Gradient = -4 and y intercept = -9

f) Gradient = 1 and y intercept = -2

h) Gradient = $\frac{4}{3}$ and y intercept = 4

37) $y = -x + 4$

38) $y = -\frac{2}{3}x - 2$

39) $y = -x - 1$

40) $y = x - 2$

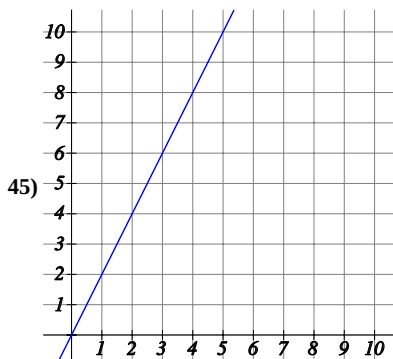
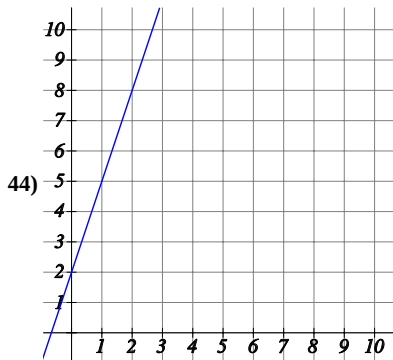
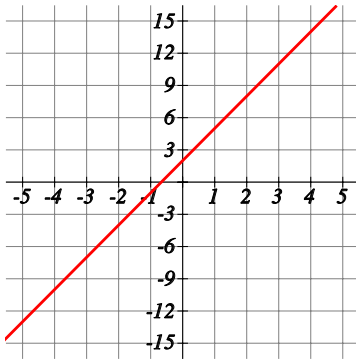
41) a) $y = -3x - 6$

b) $y = -4x - 7$

42) a) $y = 3x + 4$

b) $y = -2x - 1$

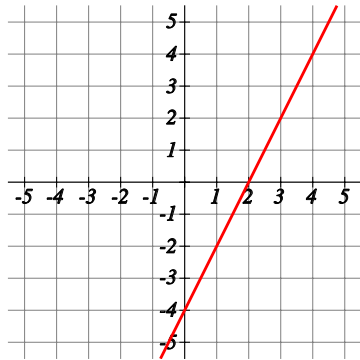
43) Table values are 5, 11 and 17



46) $2x + 7y = 16$



47) $4x - 2y = 8$



48) B

49) $y = 5x + 13$

50) $y = -3x + 1$

51) $y = \frac{1}{4}x - 2$

52) $y = 2x + 7$

53) $y = \frac{1}{2}x - 4$

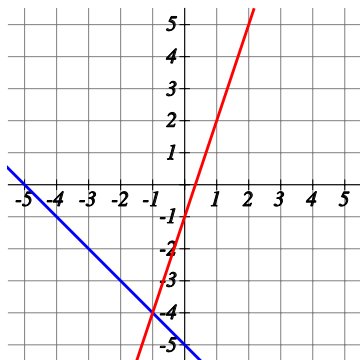
54) The coordinates are $(-3, -8)$

55) The coordinates are $(3.5, 2)$

56) $x = 1$ and $y = -2$

57) $x = 0$ and $y = -2$

58) Dot location is $(-1, -4)$



59) Dot location is (-2, 1)

