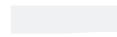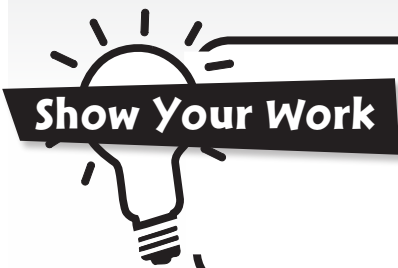# Activity One

**1a)** Charlie is saving up for an iPod. He has already saved $110, and can put away $20 a week toward his purchase. Write an expression that can be used to determine Charlie's savings after w weeks.

**b)** If the iPod costs $250.00, how many weeks must Charlie save for the purchase?

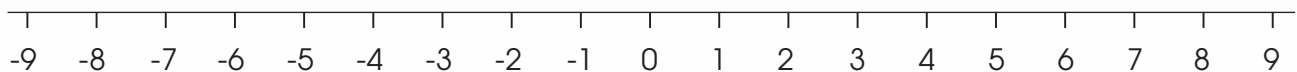**c)** What is the solution to this equation:

$4x + 58 = 10x - 2$

**Show Your Work**

Answer: _____

**d)** Graph the letter on the accompanying number line.

$7 > x \geq -6$

```
-9  -8  -7  -6  -5  -4  -3  -2  -1   0   1   2   3   4   5   6   7   8   9
```

# Activity Two

**2a)** Ella is mailing a package to her cousin, Hope. She takes it to a courier where the flat rate for mailing a package is $15 plus $2 per pound. Write an expression to determine the total cost of mailing a package that weighs **p** pounds.

Answer: _____

**b)** **Using the expression you developed in a), calculate the cost of a package that weighs 4 pounds.**

**Show Your Work**

Answer: _____

**c)** **Examine the input-output table shown below.**

| Input | Output |
|-------|--------|
| 2 | 6 |
| 3 | 10 |
| 4 | 14 |
| 5 | 18 |

Which of these rules describes the data?

i)  Multiply by 3 subtract 3

ii)  Multiply by 3 add 2

iii) Multiply by 2 add 3
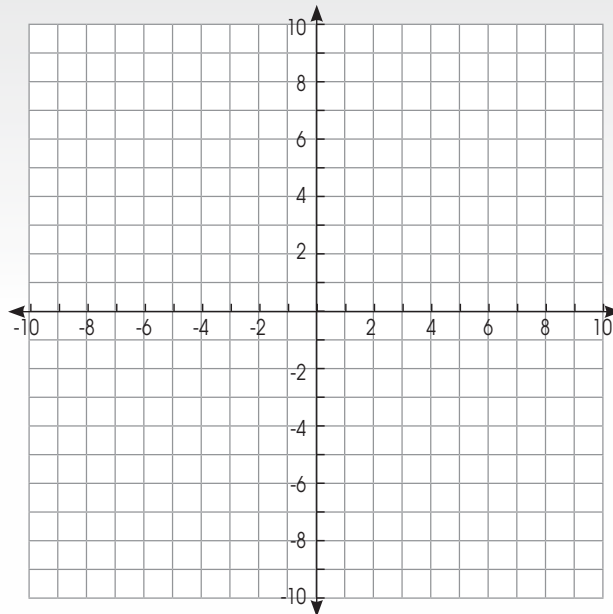
iv) Multiply by 4 subtract 2

# Activity Three

**3a)** Angelica is paid $9 an hour at her summer job at the community pool. The formula to calculate her pay is:

P = 9h

**Which of the following statements is true?**

i)   P is the only variable.              ii)   h is the only constant.
iii) P and h are variables.              iv)  P and h are constants.

**b)    Plot the following points: A (3,5),  B (0,-8),  C (-8,-5), D (-2, 2)**



**c)    René shows her steps in solving the following equation for z:**

**5z – 2 = 13**

Step 1:  5z – 2 + 2 = 13 - 2

Step 2:  5z = 11

Step 3:  z = 11 / 5

Step 4:  z = 2 1/5

In which step did René make an error?

i)  Step 1                    ii)  Step 2                    iii)  Step 3                    iv)  Step 4

# Activity Four

**4)** Jeremiah's school is holding a carwash fundraiser. The school spent $35 for the equipment and supplies needed for the carwash. It will cost them $2 for water/supplies for each car washed. They will charge $4 for each car washed.

**a)** **Jeremiah's school had a most successful day washing a total of 120 cars. Use the following expression to calculate the total cost to wash x cars: C = 35 + 2x**
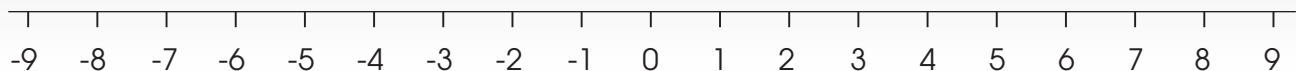
**Show Your Work**

Answer: _____

**b)** **Which of the following expressions would best calculate their profits for the day if x = number of cars washed?**

i) P = 4x – (35 + 2x)     ii) P = 35 + 2x + 4x       iii) P = 4x × 2x + 35     iv) P = 4x

**c)** **On the number line below, graph the solution to x:**

**2x + 3 = 13**

-9  -8  -7  -6  -5  -4  -3  -2  -1  0  1  2  3  4  5  6  7  8  9

**d)** **Expand and simplify these equations.**

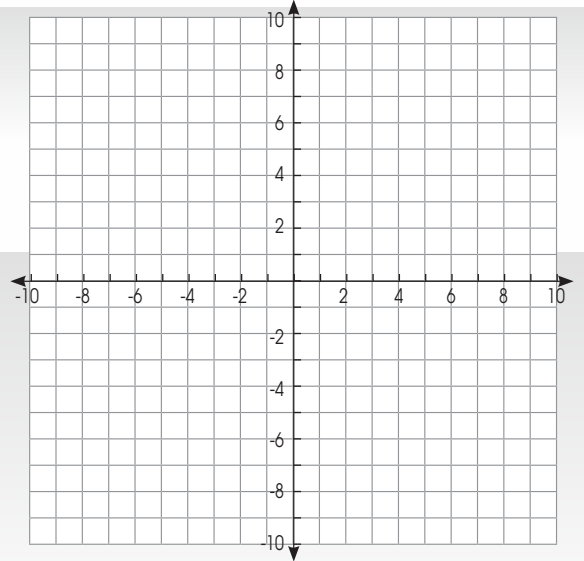i)  2(x – 5y) + 5(x + 3y)

ii)  (2x + y) (5x – 2y)

# Activity Five

**5a)** **Plot the following coordinates on the accompanying chart:**

A = (-8, 2)
B = (0, 7)
C = (5, -6)
D = (9, 7)



**b)** **Which pattern follows the following rule: multiply by 2, subtract by 3, add 2?**

i)  4, 7, 14, 21, 28

ii)  7, 13, 25, 49, 97

iii)  5, 10, 14, 20, 26

iv)  6, 11, 21, 31, 40

**c)** **Solve:**

i)  $4x + 13 = 25$

ii)  $7y - 4 = 37 - 6$

iii)  $2(4x - 3) = x + 1$

**d)** **Tim went to an amusement park. It cost him \$35 for admittance and \$5 per ride. He goes on 14 rides. Using an algebraic expression, where r = rides, determine the cost of Tim's day at the park.**

**Show Your Work**

Answer: _____

# Activity Six

**6a)** **Write equations for the following sentences.**

   i)   Ten less than a number is 6.      _____

   ii)  Two greater than a number is 3.     _____

   iii) The sum of 8 and a number is 11.   _____

   iv) Four more than 3 times a number is equal to 13.   _____

**b)** **Find the value of x if:**    $x + 3^2 = 12$

**Show Your Work**

Answer: _____

**c)** **Patterns can be observed in many construction jobs. When Seema was helping her dad build a fence in the backyard, for instance, she noticed that if she counted the number of vertical posts, subtracted one and multiplied by two, she could find the number of horizontal boards. Fill in the chart below indicating the horizontal boards.**

| Number of Vertical Posts | Number of Horizontal Posts |
|:---:|:---:|
| 2 | |
| 4 | |
| 5 | |
| 7 | |

*(these answers are for the 6 free bonus pages, see page 3 for download instructions)*

**EZ✔**

**6.**

**a)** i) $x - 10 = 6$

ii) $x + 2 = 3$

iii) $8 + x = 11$

iv) $3x + 4 = 13$

**b)** $x + 3^2 = 12$
$x + 9 = 12$
$x = 12 - 9$
$x = 3$

**c)**
2
6
8
12

⬤ 6A

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**5.**

**a)**



**b)** ii) 7, 13, 25, 49, 97

**c)** i) $4x + 13 = 25$
$4x = 25 - 13$
$4x = 12$
$x = 3$

ii) $7y - 4 = 37 - 6$
$7y = 37 - 6 + 4$
$7y = 35$
$y = 5$

iii) $2(4x - 3) = x + 1$
$8x - 6 = x + 1$
$8x - x = 6 + 1$
$7x = 7$
$x = 1$

**d)** $C = 35 + 5r$
$C = 35 + 5(14)$
$C = 35 + 70$
$C = 105$

⬤ 5A

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**4.**

**a)** $C = 35 + 2x$
$C = 35 + 2(120)$
$C = 35 + 240$
$C = 275$

**b)** i) $P = 4x - (35 + 2x)$

**c)** Label 5

**d)** i) $2x - 10y + 5x + 15y$
$= 7x + 5y$

ii) $(2x \times 5x) + (2x \times -2y)$
$+ (y \times 5x) + (y \times -2y)$
$= 10x^2 - 4xy + 5xy - 2y^2$
$= 10x^2 + xy - 2y^2$

⬤ 4A

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**3.**

**a)** iii) P and h are variables

**b)**



**c)** i) Step 1

⬤ 3A

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**2.**

**a)** $C = 15 + 2p$

**b)** $C = 15 + 2(4)$
$C = 15 + 8$
$C = 23$

**c)** iv) Multiply by 4
subtract 2

⬤ 2A

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**1.**

**a)** $C = 110 + 20w$

**b)** $250 = 110 + 20w$
$250 - 110 = 20w$
$140 = 20w$
$w = 140 / 20$
$w = 7$ weeks

**c)** $4x + 58 = 10x - 2$
$4x + 58 - 58 = 10x - 2$
$\qquad\qquad -58$
$4x = 10x - 60$
$4x - 10x = -60$
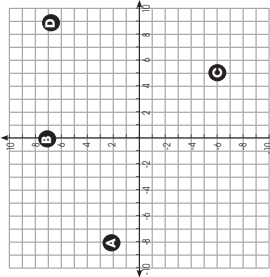$-6x = -60$
$-x = -10$
$x = 10$

**d)** Label from -6 to 6.

⬤ 1A