

Year 7 Term 2 Homework

Student Name: _____	Grade: _____
Date: _____	Score: _____

Table of contents

7 Year 7 Term 2 Week 7 Homework	1
7.1 Number Patterns and Pronumerals	1
7.1.1 Describing the relationship between two quantities	1
7.1.2 Table of values	3
7.1.3 Representing relationship on a number grid	4
7.2 Problem Solving	5
7.3 Diagnostic Test	6
7.4 Miscellaneous Exercises	9

This edition was printed on October 6, 2010.

Camera ready copy was prepared with the **L^AT_EX₂ ϵ** typesetting system.

Copyright © 2000 - 2009 Yimin Math Centre (www.yiminmathcentre.com)

7 Year 7 Term 2 Week 7 Homework

7.1 Number Patterns and Pronumerals

7.1.1 Describing the relationship between two quantities

Exercise 7.1.1 Find a rule that could be used to generate each table of values:

1.

x	1	2	3	4	5
y	4	5	6	7	8

2.

x	1	2	3	4
y	6	10	14	18

3.

x	3	4	5	6
y	8	15	24	35

4.

x	1	3	5	7
y	13	9	5	1

Exercise 7.1.2 For the following matchstick pattern:



1. Form a table of values showing the number of matches in each of the first 5 steps.

<i>x</i>	1	2	3	4	5
<i>y</i>					

2. Write down a rule that links the number of matches to the step number.

3. Find the number of matches in step 25.

Exercise 7.1.3 For the following matchstick pattern:



1. Form a table of values showing the number of matches in of the first 5 steps.

<i>x</i>	1	2	3	4	5
<i>y</i>					

2. Write down a rule that links the number of matches to the step number.

3. Find the number of matches in step 50.

7.1.2 Table of values

Exercise 7.1.4 Complete each of the following tables using the given expressions.

1. $y = 24 - 3x$

x	8	6	4	2	0
y					

2. $y = 3x + 5$

x	0	1	2	3	4
y					

3. $y = \frac{1}{4}x + 2$

x	2	4	6	8	10
y					

4. $y = 6 - \frac{1}{2}x$

x	2	4	6	8	10
y					

5. $y = \frac{4x-2}{2}$

x	2	4	6	8	10
y					

6. $y = 2(x - 4)$

x	8	6	4	2	0
y					

7. $y = (x - 2)^2$

x	1	2	3	4	5
y					

8. $y = (x + 3)(x - 3)$

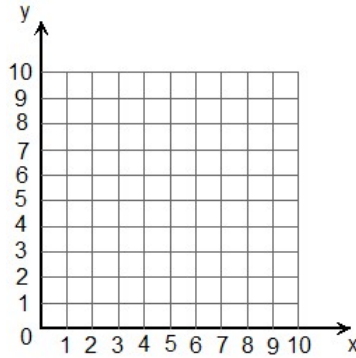
x	2	4	6	8	10
y					

7.1.3 Representing relationship on a number grid

Exercise 7.1.5 Complete each table of values using the given rule, then plot the points on a number grid.

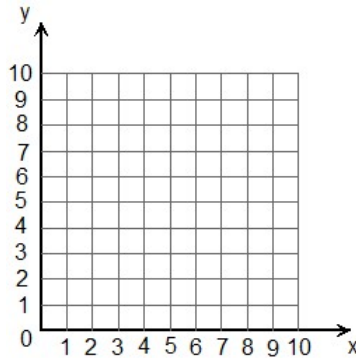
1. $y = 3x - 2$

x	1	2	3	4
y				



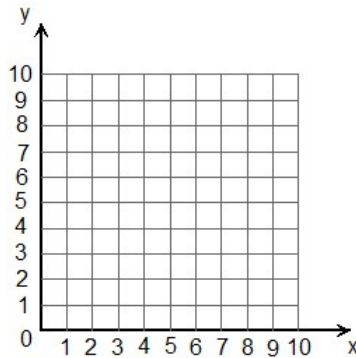
2. $y = 4 - \frac{x}{2}$

x	2	4	6	8
y				



3. $y = 8 - 2x$

x	0	1	2	3	4
y					



7.2 Problem Solving

Exercise 7.2.1

1. Solve the following equation: $\frac{18-2x}{2} = 5$

2. The average of six numbers is 19. A seventh number is added and the new average is 21. What is the seventh number?

3. After a price increase of 3%, a new car costs \$29,355. What was the price of the car before the increase?

4. Find two numbers such that their sum is -45 and their product is 504.

5. A piece of string was $7\frac{4}{9}$ metres long. Tom cut off $1\frac{5}{18}$ metres of the string and gave it to Emma. He then cut off $\frac{2}{3}$ of the remaining length for his sister. What was the length of the remaining piece of string?

7.3 Diagnostic Test

1. Complete the following table using the given expression:

[10]

$y = (x - 3)^2$

x	1	2	3	4	5
y					

2. For the following matchstick pattern:



(a) Form a table showing the number of matches in each of the first 5 steps.

[5]

x	1	2	3	4	5
y					

(b) Write down a rule that links the number of matches to the step number.

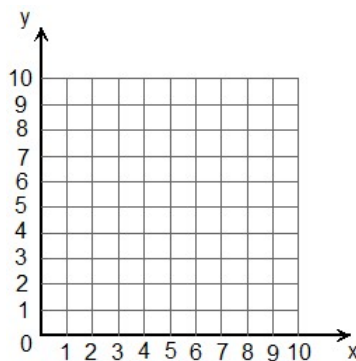
[5]

(b) _____

3. Complete the following table of values using the given rule, then plot the points on a number grid. [10]

$y = 3(x - 2)$

x	2	3	4	5
y				



4. Find a rule that could be used to generate each table of values:

(a)

x	12	13	14	15
y	8	7	6	5

 [5]

(a) _____

(b)

x	1	2	3	4
y	2	5	10	17

 [5]

(b) _____

5. Find the sum of adding up all even numbers from 2 to 200: [10]

$$2 + 4 + 6 + 8 + \dots + 200$$

5. _____

6. Given the formula $v^2 = u^2 + 2as$, find the value of **a** given that $v = 9$, $u = 7$ and $s = 4$. [10]

6. _____

7. Write a rule in symbols to add up the numbers $1 + 2 + 3 + 4 + \dots + n$, where n is a whole number [10] and it is the last number in the sequence.

7. _____

8. Solve the following equation: $\frac{18-2x}{5} = 4$ [10]

8. _____

9. Out of possible 250 marks, Ken scored 92%. How many extra marks would he have needed to score 96%? [10]

9. _____

10. Find two numbers such that their difference is 13 and their product is -40. [10]

10. _____

7.4 Miscellaneous Exercises**Exercise 7.4.1**

1. Solve the following equations:

(a) $3x + 8 = -1$

(b) $5x + 7 = 6 - 9x$

(c) $4(x - 5) = 3(1 - x) + 5$

(d) $3(2x + 3) - (5 - x) = 15 - 4x$

2. David is eight years younger than Adam. In nine year's time, the sum of their ages will be 76. How old is Adam now?

3. George spends \$ p of his pocket money everyday. How much will he spend in 25 weeks?

Exercise 7.4.2

1. Solve the following equations:

(a) $\frac{x}{3} + x + 2 = 6$

(b) $\frac{2x+1}{3} - \frac{x-1}{4} = 1$

(c) $\frac{x+1}{2} - \frac{x+3}{3} = 5$

2. One quarter of a number added to 10 gives the same result as when $\frac{1}{3}$ of it is subtracted from 31. What is the number?

3. Jimmy spent \$9.05 on pens and exercise books. If one dozen pens cost \$13.20 and he bought 7 exercise books and 6 pens, find the cost of an exercise book.

4. The sum of 4 consecutive odd numbers is 152. Find the largest number.
