Worksheet 2015-8ÆA-00004(2)

NO CALCULATOR MAY BE USED IN THIS EXERCISE!

(1) Is 16 a multiple or a factor of 4?

Multiple

(2) (a) Determine the prime factors of 48 and 12.

2	48
2	24
2	12
2	6
3	3
	1

2	12
2	6
3	3
	1

$\therefore 48 = 2\times2\times2\times2\times3$
$= 2^4 \times 3^1$

$12 = 2\times2\times3$
$= 2^2 \times 3^1$

(b) Hence, determine: $\sqrt{48 \times 12}$ without using a calculator.

$\sqrt{48\times12} = \sqrt{2^4\times3\times2^2\times3}$
$= \sqrt{2^2\times2^2\times3^2\times2^2}$
$= 2\times2\times3\times2$
$= 24$

(3) Write down all the even multiples of 7, up to 50.

14; 28; 42

(4) What is the difference between a prime number and a composite number?

A prime number has only 2 factors nl 1 and the number itself. Where a composite number has more than 2 factors

(5) A = {1 ; 2 ; 3 ; 4 ; 5 ; 6 ; 12 ; 18 ; 24}

(a) Which elements of A is prime numbers?

{2; 3; 5}

(b) All elements of A are factors of 24. Is this statement true? If not, which of the elements of A are not factors of 24?

False

5 and 18 are not factors of 24.

(c) All the prime factors of 10 is elements of A. True or false?

True

The prime factors of 10 is 2 and 5

$10 = 2 \times 5$

(6) Calculate, without using a calculator. Show all calculations.

(a) $\sqrt{64 + 6^2}$

$= \sqrt{64 + 36}$

$= \sqrt{100}$

$= 10$

(b) $[(3 - 4)^2 + 2]^2$

$= [(-1)^2 + 2]^2$

$= [1 + 2]^2$

$= [3]^2$

$= 9$

(c) $\sqrt[3]{3\,375}$ → See next page!

$= \sqrt[3]{3 \times 3 \times 3 \times 5 \times 5 \times 5}$

$= \sqrt[3]{3^3 \times 5^3}$

$= 3 \times 5$

$= 15$

(d) $5^3 - \sqrt[3]{125}$

$= 125 - 5$

$= 120$

(e) $0 \cdot 3^3 + 7^2$

$= 0 \times 27 + 49$

$= 0 + 49$

$= 49$

(f) $(4 - 3)^2(3 - 2)^2$

$= (1)^2 (1)^2$

$= 1 \times 1$

$= 1$

(7) Which of the following numbers are Rational numbers?

$\frac{-6}{11}$; $\sqrt{10}$; $0,\underline{234}$; $\underline{0}$; $\underline{\sqrt[3]{8}}$; $\underline{4,\dot{3}}$

Rational numbers: $\frac{-6}{10}$; 0,234 ; 0 ; $\sqrt[3]{8} = 2$ and $4,\dot{3}$

(6)(b)

3	3 375
3	1 125
3	375
5	125
5	25
5	5
	1