6.2 Exercise

Marks Available : 100

Question 1

(a) Solve these simultaneous equations

$$7x + 4y = 37$$

$$ADD \quad 9x - 4y = 11$$

[7 marks]

(b) Solve these simultaneous equations

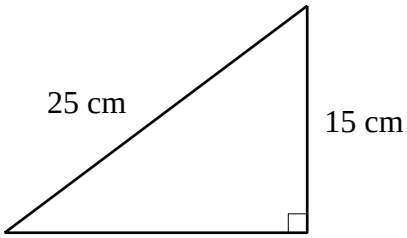
$$10x + 7y = 41$$

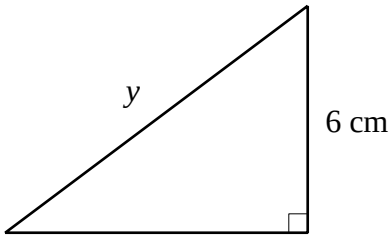
$$SUBTRACT \quad 3x + 7y = 27$$

[7 marks]

Question 2

Find the missing side on each of these two triangles.
For one you'll have to use the version of Pythagoras' Theorem in which you add, for the other, the version involving a subtract.
But which is which ?
Good luck !





[4, 4 marks]

Question 3

Write 108 as a product of primes.

[2 marks]

Question 4

Find the value of

(i)	**(ii)**	**(iii)**	**(iv)**	**(v)**
$100^{\frac{1}{2}}$	100^{0}	100^{3}	100^{-1}	$100^{-\frac{1}{2}}$

[5 marks]

Question 5

Add without using a calculator, showing the working involved.

$\frac{2}{7} + \frac{5}{14} =$

[3 marks]

Question 6

Subtract without using a calculator, showing the working involved.

$\frac{3}{4} - \frac{2}{3} =$

[3 marks]

Question 7

Multiply without using a calculator, showing the working involved.

$\frac{4}{7} \times \frac{5}{12} =$

[3 marks]

Question 8

Dividing without using a calculator, showing the working involved.

$\frac{5}{11} \div \frac{10}{13} =$

[3 marks]

Question 9

Add without using a calculator, showing the working involved.

$\frac{4}{9} + \frac{7}{27} =$

[3 marks]

Question 10

Subtract without using a calculator, showing the working involved.

$\frac{5}{7} - \frac{2}{5} =$

[3 marks]

Question 11

Multiply without using a calculator, showing the working involved.

$\frac{5}{6} \times \frac{3}{25} =$

[3 marks]

Question 12

Dividing without using a calculator, showing the working involved.

$\frac{7}{8} \div \frac{21}{23} =$

[3 marks]

Question 13

Determine

(i) The SUM of 5 and 7

(ii) The DIFFERENCE of 17 and 9

(iii) The PRODUCT of 15 and 5

[3 marks]

Question 14

Showing full working, and without using a calculator, do this long multiplication

$$361 \times 62$$

[4 marks]

Question 15

Showing full working, and without using a calculator, do this long multiplication

$$187 \times 57$$

[4 marks]

Question 16

If $a = 4$, $f = 2$, $r = 9$ and $t = -5$ calculate the value of

(i) $r + a + f + t$

(ii) $r\ a\ f\ t$

(iii) $\dfrac{r\ +\ a\ +\ t}{f}$

[6 marks]

Question 17

Simplify these algebraic expressions

(i) $4x + 3y + 9x - 7y$

(ii) $18z + 23z - 23x + 4w$

(iii) $5\ (\ 2x + 3\ ) + 7$

(iv) $8 + 7\ (\ 2w + 3\ )$

[8 marks]

Question 18

Solve these equations

(i) $5x + 8 = 38$

[2 marks]

(ii) $6x - 5 = 4$

[2 marks]

(iii) $7x + 2 = 2x + 12$

[3 marks]

(iv) $9 + 5x = 3x + 16$

[3 marks]

Question 19

For each of the following numbers, state either PRIME or NOT PRIME.
For those that are not prime, give a divisor other than 1 or the number itself.
You may use a calculator in this question.

(i) 25 **(ii)** 13

(iii) 54 **(iv)** 10345

(v) 91 **(vi)** 101

[6 marks]

Question 20

Showing full working, and without using a calculator, do this division sum.

$$36018 \div 3$$

[3 marks]

Question 21

Showing full working, and without using a calculator, do this division sum.

$$17822 \div 7$$

[3 marks]