Christmas Revision Number 4 - TEST

Year 9

You may use a calculator

Question 1
Simplify

(i) $w^7 \times w^4$

[1 mark]

(ii) w^0

[1 mark]

(iii)

$(2w^3)^4$

[2 marks]

(iv)

$$\frac{5w^5}{15w^2}$$

[2 marks]

Question 2

(i) Write down a number that has two factors exactly

[1 mark]

(ii) Write down all the prime numbers between 30 and 40

[2 marks]

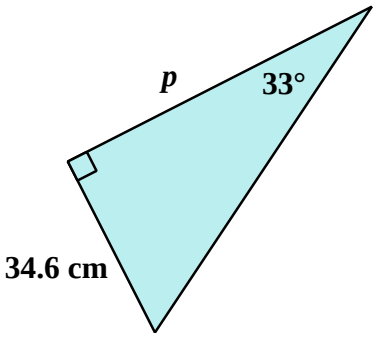
(iii) Give an example of a triangular number that is also a square number

[2 marks]

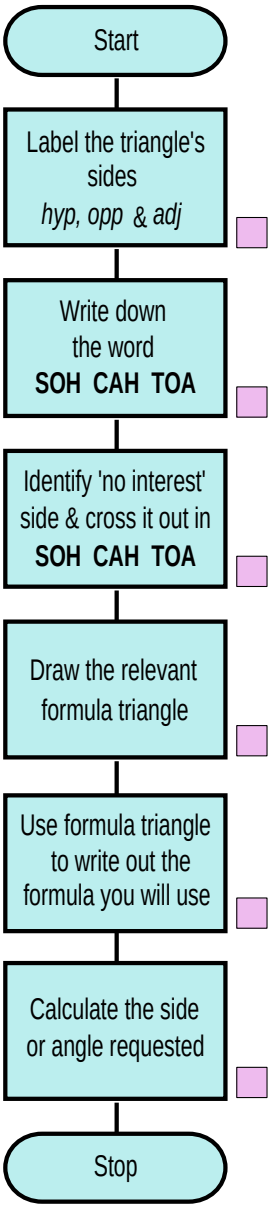
(iv) Write down the first six multiples of 15

[2 marks]

Question 3



Calculate the length marked *p*.
Give your answer correct to 3 significant figures



[4 marks]

Question 4

Showing clear working, write the following recurring decimal fraction as a vulgar fraction in its simplest form;

$$0.\dot{7}\ddot{2}$$

[4 marks]

Question 5

Simplify the following, leaving your answers in index form

(i) $5^{12} \div 5^{4}$

[1 mark]

(ii) $7^{6} \times 7^{-2}$

[1 mark]

(iii) $3^{11} \div 3^{-3}$

[1 mark]

Question 6

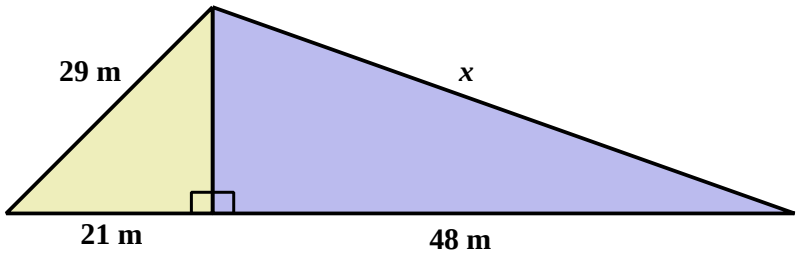
Calculate the following, showing full working and simplifying your answers fully;

$$4\frac{3}{7} - 1\frac{8}{21}$$

[3 marks]

Question 7

By using the theorem of Pythagoras twice, find the length of the side marked x



[4 marks]

Question 8

Given that $f = 25$, $a = 0.5$ and $b = -16$

Calculate the following

(i) $f + a + b$

[1 mark]

(ii) $b + f \div a$

[2 marks]

(iii) $(f + b)^a$

[2 marks]

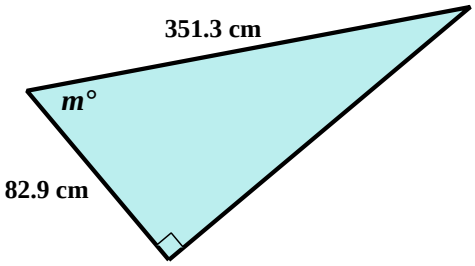
Question 9

Calculate the following, showing full working and simplifying your answers fully;

$$1\frac{3}{5} \div 1\frac{1}{4}$$

[3 marks]

Question 10



Calculate the angle marked *m*

Give your answer in degrees correct to 3 significant figures

[4 marks]

Question 11

Simplify these algebraic expressions

(i) $17e + 5z - 18z - 11e$

[2 marks]

(ii) $7 (e + 3z) + 4 (5e + z)$

[3 marks]

(iii) $13 - 5 (6 + 5z)$

[2 marks]

(iv) $4 (3p - 7) - 2 (5p - 6)$

[3 marks]

Question 12

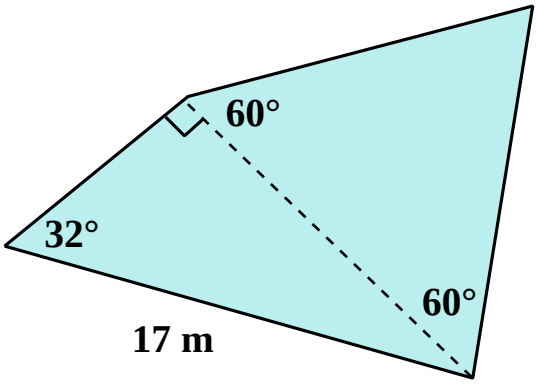
(i) What is the highest common factor of 56 and 80

[2 marks]

(ii) What is the lowest common multiple of 56 and 80

[2 marks]

Question 13

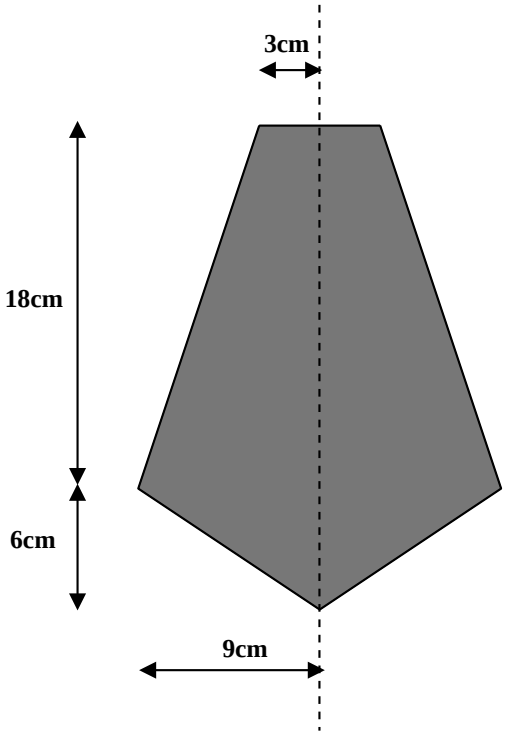


Calculate the perimeter of this shape
Explain your method and show full working at each stage

[5 marks]

BONUS QUESTION

This shape has mirror symmetry in the broken vertical line
Use the measurements given to determine the area shaded.



[8 marks]