Name	Teacher

Year 9 Number 1 Test

Section 1: Total /47	%	Section 2: Total /28	%

Instructions:

- Working steps are required for any answer with a mark greater than 1
- Calculators are **not** permitted
- Extra working paper is at the end

Section 1

1. (a) What is the definition of a prime number? (1 mark)

_____

_____

(b) Circle the prime numbers in this list. (2 marks)

1 2 9 11 31 91 93 97

(c) If you add the prime numbers 5 and 19 you get 24. (2 marks)
Find two more ways of adding primes to get 24:

_____

2. (a) Find the lowest common multiple of 9 and 21: (2 marks)

_____

_____

(b) Find the highest common factor of 42 and 70: (2 marks)

_____

_____

3. Use a factor tree to write 84 as the product of prime factors: (2 marks)

-

84 = _____

4. List all of the factors of 96: (2 marks)

5. Convert the following decimals to fractions in their simplest form:

   (a) 0.36 (2 marks)

   (b) $0.\dot{5}$ (1 mark)

6. Complete the following calculations:

   (a) $9 - 21 =$ (1)

   (b) $-3 - -8 =$ (1)

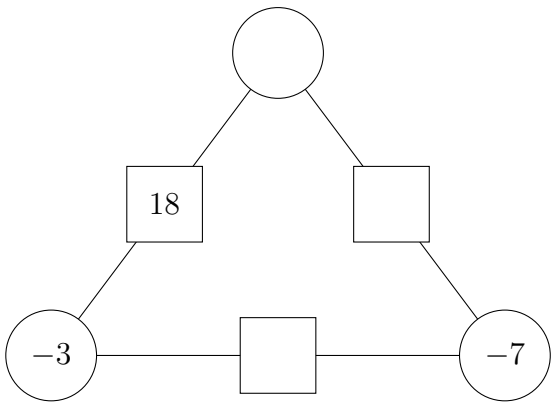
   (c) $4 + -10 =$ (1)

   (d) $-8 \times 6 =$ (1)

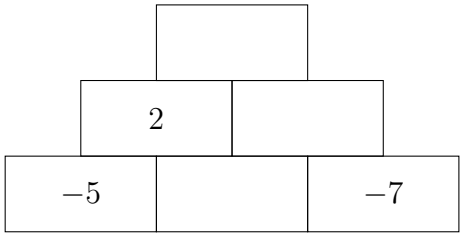
   (e) $-36 \div -4 =$ (1)

   (f) $-3 - 2 \times -7 =$ (1)

7. The numbers in the circles multiply to give the number in the squares between them. Fill in the missing spaces: (2 marks)



8. The two bricks below add to the brick above. Fill in the missing bricks: (2 marks)



9. List all the square numbers less than 101: (2 marks)

_____

10. Evaluate the following:

(a) $3^2 \times (3 + -6) =$

_____

_____ (2)

(b) $\left(\frac{2}{3}\right)^3 =$

_____

_____ (2)

(c) $(-2)^4 =$

_____

_____ (2)

(d) $4 \times 15 \div 3 \div 2 =$

_____

_____ (2)

(e) $(13 - -1) \times 3 - 13 =$

_____

_____ (2)

(f) $3 \times -6 + 2 \times 13 =$

_____

_____ (2)

(g) $\frac{-96}{-12} =$

_____

_____ (2)

(h) $\frac{-5 + -19}{-3 + 9} =$

_____

_____ (2)

11. Simplify $\sqrt{2} \times \sqrt{5}$: (1 mark)

_____

12. Write $\sqrt{45}$ in the form $a\sqrt{b}$ where a and b are integers: (2 marks)

_____

Section 2 - challenge questions

13. Find the value of P in the following exponent equation $2^{2\times P-3} = 32$ (3 marks)

14. $8 \times 21 \times 11 = 1848$ and $4 \times 7 \times 13^2 = 4732$. (6 marks)

(a) Find the Highest Common Factor of 1848 and 4732

(b) Write the Lowest Common Multiple of 1848 and 4732 as the product of 3 numbers.

- the numbers do not need to be primes
- you do not have to find the actual value of Lowest Common Multiple.

15. It takes Jane 2 hours to load a truck with firewood, Samantha 2.5 hours and Anna 3 hours. How long will it take them to load one truck working together? (4 marks)

16. Identify the primes in the set $\{165, 166, 167, 168, 169, 170, 171, 172, 173, 174\}$ (4 marks)

17. Write $\sqrt{320}$ in the form $a\sqrt{b}$ where a and b are integers: (4 marks)

18. Clearly show that $0.3\dot{4} = \dfrac{31}{90}$ (3 marks)

19. The two bricks below add to the brick above. Fill in the missing bricks: (4 marks)