

7. Merissa works a regular 40 hours per week with overtime paid at time and a half. Last week she worked 48 hours in total.

- (a) Letting x represent her hourly wage, write down and simplify an expression for her total earnings for last week. [3]

Expression for Regular Earnings =

Expression for Over Time Earnings =

Expression for Total Earnings =

Her total earnings last week was \$650.

- (b) Use your results in (a) to write down and solve an equation for her hourly wage. [2]

Equation for Total Earnings =

Hourly Wage =

7. The sum of the first n natural numbers is given by the formula

$$S = \frac{n(n+1)}{2}$$

Use the formula to calculate

- (a) the sum of the first 50 natural numbers, [2]

$$S = \text{—————} =$$

- (b) the amount of natural numbers that add up to 210. [5]

Equation After Substituting

$$\text{—————} = 210$$

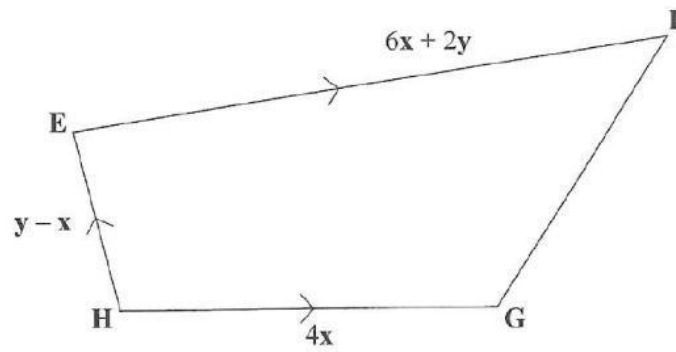
Equation After Simplifying

=

$$n = \quad \text{or}$$

Amount of Natural Numbers =

7. Express in terms of x and y in simplest terms.



(a) \overrightarrow{HM} , where M is the midpoint of \overrightarrow{EF} [2]

Half $EF =$

Vector $HM =$

(b) \overrightarrow{GF} [2]

7. The population of Spain in 2016 was 46 million people. If this amount increases by 5% each year, calculate the population of Spain in 2019 to nearest million. [3]

Population in 2017 =

Population in 2018 =

Population in 2019 =

7. (a) Factorise.

(i) $12x^3 - 75x$ [3]

(ii) $3ay - by - 6a + 2b$ [3]

(b) Factorise and simplify.

$\frac{2x - 3}{2x^2 + 5x - 12}$ [3]

Fraction after Factorizing

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Fraction after Simplifying

7.

p	2	10	
q	15		240

In the table above, q varies inversely as the square of p .

Generic Proportional Formula = _____

The Value of The Constant Multiplier =

Find the missing value of

(a) q , [4]

Proportional Formula with substitution = _____

$q =$

(b) p . [3]

Proportional Formula with substitution

240 = _____

$p =$

7. (a) Factorise completely

(i) $2ax - bx + 12ay - 6by$ [3]

(ii) $x^2 - 36y^2$ [2]

(b) Hence, simplify $\frac{x^2 - 36y^2}{2ax - bx + 12ay - 6by}$ [2]