

Multiple-Choice Tasks – Sample questions

Year 8 Tasks

1. **Integers and Indices**

Using index notation with numbers, applying the index laws with positive integral indices and the zero index, evaluating numbers expressed as powers of positive integers, carrying out the four operations with integers, using efficient mental and written strategies

2. **Fractions, Decimals and Percentages**

Recognising fraction, decimal and percentage equivalents, using terminating and recurring decimals, carrying out the four operations on positive and negative fractions and decimals, solving problems involving fractions, decimals and percentages

3. **Rates and Ratios**

Solving a range of problems involving rates and ratios, understanding that rate and ratio problems can be solved using fractions or percentages, choosing the most efficient form to solve a particular problem, using the unitary method

4. **Statistics and Probability**

Identifying the population when collecting data, exploring the variation of means and proportions in representative data, using sample properties to predict characteristics of the population, investigating the effect of individual data values, including outliers, on the mean and median, identifying complementary events and using the sum of probabilities to solve problems, describing events using language of exclusive 'or' (A or B but not both), inclusive 'or' (A or B or both) and 'and', representing such events in two-way tables and Venn diagrams and solving related problems

5. **Algebra**

Simplifying algebraic expressions involving the four operations, understanding that the laws used with numbers can also be used with algebra, applying the distributive law to the expansion of algebraic expressions, identifying the greatest common divisor (highest common factor) of numeric and algebraic expressions, factorising algebraic expressions by identifying numeric and algebraic factors, applying the distributive law to the expansion of algebraic expressions using strategies such as the area model

6. **Linear Graphs**

Plotting linear relationships on the Cartesian plane, completing a table of values, assessing the steepness of a line, determining if the gradient is positive, negative, zero or undefined, finding the coordinates of points on a line by inspection and by substitution, finding the axial intercepts, finding the rule for a linear relationship, using rules to recognise parallel lines, determining whether a relationship is linear

7. **Linear Equations**

Solving linear equations using algebraic and graphical techniques, verifying solutions by substitution, solving real life problems by using variables to represent unknowns

8. **Measurement**

Choosing appropriate units of measurement for area and volume and converting from one unit to another, finding perimeters and areas of parallelograms, rhombuses, trapeziums and kites, investigating the relationship between features of circles such as circumference, area, radius and diameter, using formulas to solve problems involving circumference and area, developing the formulas for volumes of rectangular and triangular prisms and prisms in general, using formulas to solve problems involving volume, solving problems involving duration, including using 12- and 24-hour time within a single time zone

9. **Geometry**

Defining congruence of plane shapes using transformations (translations, reflections, rotations), applying the conditions for congruence of triangles (SSS, SAS, ASA, RHS), using congruent triangles and angle properties to solve related problems using reasoning

Multiple-Choice Tasks – Sample questions

Year 8: Integers and Indices

Question 4

$$-7^2 =$$

- A 14
- B -14
- C 49
- D -49
- E -5

Year 8: Fractions, Decimals and Percentages

Question 17

Which of the following expressions increases \$239.50 by 9%?

- A $0.09 \times \$239.50$
- B $0.91 \times \$239.50$
- C $1.09 \times \$239.50$
- D $\$239.50 + \23.95
- E $\$239.50 - \23.95

Year 8: Rates and Ratios

Question 13

George, Wunji and Kuo own shares in their small business in the ratio 7 : 8 : 5. The fraction of the business' shares owned by Wunji is

- A $\frac{1}{4}$
- B $\frac{1}{3}$
- C $\frac{7}{20}$
- D $\frac{2}{5}$
- E $\frac{1}{2}$

Year 8: Statistics and Probability

Question 3

The proportion of Yarra High School students who cycle to school each day is 30 per cent. If a random sample of 100 students were taken, the number who cycle to school each day would be

- A 30
- B fewer than 30
- C more than 30
- D between 25 and 35
- E between 0 and 100

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Year 8: Algebra

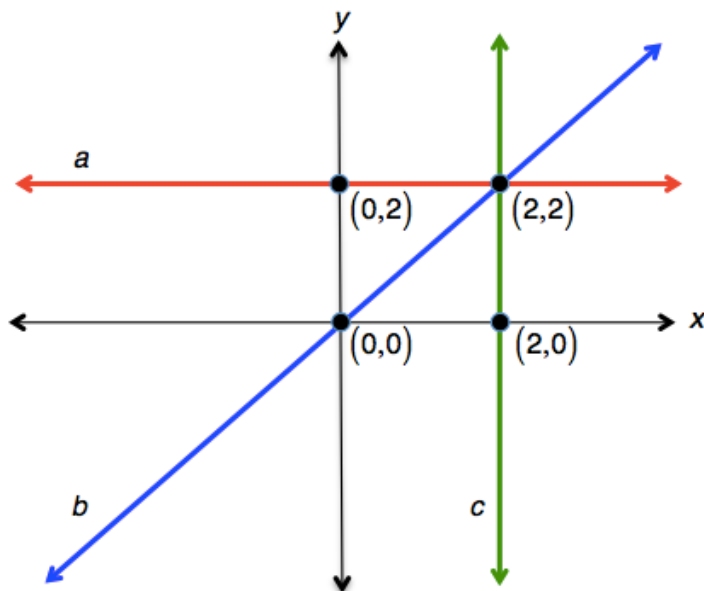
Question 5

$$-3 \times h + 4 \times h \div 2 \times h =$$

- A $\frac{1}{2}$
- B $-6h$
- C $2 - 3h$
- D $2h^2 - 3h$
- E $\frac{h^2}{2}$

Year 8: Linear Graphs

Questions 8 to 10 relate to the following straight lines, which are labelled a to c



Question 8

The equation of line a is

- A $y = 2$
- B $x = 2$
- C $y = x$
- D $y = x + 2$
- E $y = 2x$

Multiple-Choice Tasks – Sample questions

Year 8: Linear Equations

Question 20

A rectangular piece of carpet has a width of w metres.

The length of the carpet is 12 metres longer than the width.

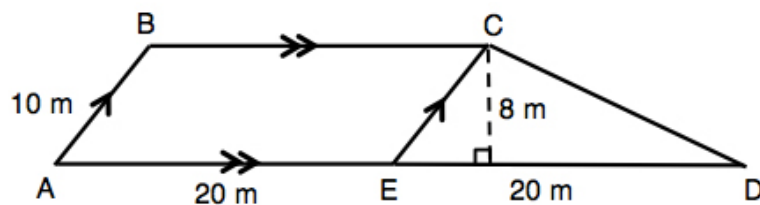
The perimeter of the carpet is 58 metres.

An equation that represents this situation is

- A $2w + 12 = 29$
- B $2w + 12 = 58$
- C $4w + 12 = 58$
- D $4w - 12 = 58$
- E $w(w + 12) = 58$

Year 8: Measurement

Questions 8 and 9 relate to the following diagram



Question 8

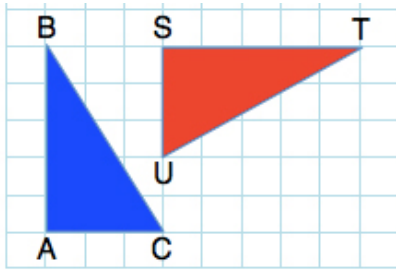
The area of parallelogram ABCE is

- A 80 m^2
- B 160 m^2
- C 200 m^2
- D 240 m^2
- E 300 m^2

Multiple-Choice Tasks – Sample questions

Year 8: Geometry

Questions 7 to 9 relate to the following diagram and information



The blue and red triangles are congruent.

Question 7

The transformations required to place the **blue** triangle on top of the **red** triangle are

- A** a 90° anticlockwise rotation around C followed by a translation of 2 units up
- B** a 90° clockwise rotation around C followed by a translation of 2 units up
- C** a 270° clockwise rotation around C followed by a translation of 5 units up
- D** a 90° clockwise rotation around U followed by a translation of 2 units down
- E** a 90° anticlockwise rotation around U followed by a translation of 2 units down

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