Self-directed Clarifying Activity – Assessment Type 1: Skills and Applications Tasks – Trade Skills Test

Purpose: The purpose of this activity is to support teachers to interpret and apply performance standards consistently to students' work in Stage 1 Mathematics Pathways.

1. **Please use the following Stage 1 Mathematics Pathways performance standards to determine a grade for the student work sample on page 8.**

   Please note: grades are determined by considering whether evidence of learning demonstrates the specific features predominantly within a particular grade e.g. a B grade level work sample should demonstrate assessment design criteria specific features predominantly at the B grade band.

2. **Record your assessment decision by holding the 'Ctrl' key and clicking here.**

   Please note: recording an assessment decision will prompt your computer to download an annotated version of the student response.

3. **Use the annotated performance standards and student work sample to compare your interpretation of the performance standards and recalibrate your assessment decision (if necessary).**

Performance Standards for Stage 1 Mathematics Pathways

	Mathematical Knowledge and Skills and Their Application	Mathematical Modelling and Problem-solving	Communication of Mathematical Information
A	Comprehensive knowledge of content and understanding of concepts and relationships. Appropriate selection and use of mathematical algorithms and techniques (implemented electronically where appropriate) to find efficient solutions to complex questions. Highly effective and accurate application of knowledge and skills to answer questions set in applied and theoretical contexts.	Development and effective application of mathematical models. Complete, concise, and accurate solutions to mathematical problems set in applied and theoretical contexts. Concise interpretation of the mathematical results in the context of the problem. In-depth understanding of the reasonableness and possible limitations of the interpreted results, and recognition of assumptions made.	Highly effective communication of mathematical ideas and reasoning to develop logical arguments. Proficient and accurate use of appropriate notation, representations, and terminology.
B	Some depth of knowledge of content and understanding of concepts and relationships. Use of mathematical algorithms and techniques (implemented electronically where appropriate) to find some correct solutions to complex questions. Accurate application of knowledge and skills to answer questions set in applied and theoretical contexts.	Attempted development and appropriate application of mathematical models. Mostly accurate and complete solutions to mathematical problems set in applied and theoretical contexts. Complete interpretation of the mathematical results in the context of the problem. Some depth of understanding of the reasonableness and possible limitations of the interpreted results, and recognition of assumptions made.	Effective communication of mathematical ideas and reasoning to develop mostly logical arguments. Mostly accurate use of appropriate notation, representations, and terminology.
C	Generally competent knowledge of content and understanding of concepts and relationships. Use of mathematical algorithms and techniques (implemented electronically where appropriate) to find mostly correct solutions to routine questions. Generally accurate application of knowledge and skills to answer questions set in applied and theoretical contexts.	Appropriate application of mathematical models. Some accurate and generally complete solutions to mathematical problems set in applied and theoretical contexts. Generally appropriate interpretation of the mathematical results in the context of the problem. Some understanding of the reasonableness and possible limitations of the interpreted results, and some recognition of assumptions made.	Appropriate communication of mathematical ideas and reasoning to develop some logical arguments. Use of generally appropriate notation, representations, and terminology, with some inaccuracies.
D	Basic knowledge of content and some understanding of concepts and relationships. Some use of mathematical algorithms and techniques (implemented electronically where appropriate) to find some correct solutions to routine questions. Sometimes accurate application of knowledge and skills to answer questions set in applied or theoretical contexts.	Application of a mathematical model, with partial effectiveness. Partly accurate and generally incomplete solutions to mathematical problems set in applied or theoretical contexts. Attempted interpretation of the mathematical results in the context of the problem. Some awareness of the reasonableness and possible limitations of the interpreted results.	Some appropriate communication of mathematical ideas and reasoning. Some attempt to use appropriate notation, representations, and terminology, with occasional accuracy.

	Mathematical Knowledge and Skills and Their Application	Mathematical Modelling and Problem-solving	Communication of Mathematical Information
E	Limited knowledge of content. Attempted use of mathematical algorithms and techniques (implemented electronically where appropriate) to find limited correct solutions to routine questions. Attempted application of knowledge and skills to answer questions set in applied or theoretical contexts, with limited effectiveness.	Attempted application of a basic mathematical model. Limited accuracy in solutions to one or more mathematical problems set in applied or theoretical contexts. Limited attempt at interpretation of the mathematical results in the context of the problem. Limited awareness of the reasonableness and possible limitations of the results.	Attempted communication of emerging mathematical ideas and reasoning. Limited attempt to use appropriate notation, representations, or terminology, and with limited accuracy.

STAGE 1 MATHEMATICS PATHWAYS

ASSESSMENT TYPE 1: SKILLS AND APPLICATIONS TASKS

TASK

TRADE SKILLS TEST

Purpose

To demonstrate your ability to:

- apply the mathematical concepts, processes, and strategies that you have learned in class to solve a range of measurement problems in a range of contexts;
- communicate relevant mathematical information appropriately within your solutions.

Description of Assessment

Use your mathematical skills and appropriate techniques to find solutions to routine and complex problems, including some set in different contexts.
This task is in two parts:

- Part A – skills
- Part B – trade pathway applications.

Assessment Conditions

This is a supervised assessment completed during class time.
Provide complete working for all calculations and use electronic technology as required.

Learning Requirements	***Assessment Design Criteria***	***Capabilities***
Demonstrate an understanding of mathematical concepts and relationships, making use of electronic technology where appropriate to aid and enhance understanding. 1. Identify, collect, and organise mathematical information relevant to investigating and finding solutions to questions/problems. 2. Recognise and apply the mathematical techniques needed when analysing and finding a solution to a question/problem in context. 3. Interpret results, draw conclusions, and reflect on the reasonableness of these	Mathematical Knowledge and Skills and Their Application The specific features are as follows: ▪ MKSA1 Knowledge of content and understanding of mathematical concepts and relationships. ▪ MKSA2 Use of mathematical algorithms and techniques (implemented electronically where appropriate) to find solutions to routine and complex questions. ▪ MKSA3 Application of knowledge and skills to answer questions set in applied and theoretical contexts. Mathematical Modelling and Problem-solving The specific features are as follows: ▪ MMP1 Application of mathematical models. ▪ MMP2 Development of solutions to mathematical	Communication Citizenship Personal Development Work Learning

in the context of the question/problem. 4. Communicate mathematical ideas and reasoning, using appropriate language and representations.	problems set in applied and theoretical contexts. ▪ MMP3 Interpretation of mathematical results in the context of the problem. ▪ MMP4 Understanding of the reasonableness and possible limitations of the interpreted results, and recognition of assumptions made. Communication of Mathematical Information The specific features are as follows: ▪ CMI1 Communication of mathematical ideas and reasoning to develop logical arguments. ▪ CMI2 Use of appropriate mathematical notation, representations, and terminology.	

STAGE 1 MATHEMATICS PATHWAYS

ASSESSMENT TYPE 1: SKILLS AND APPLICATIONS TASKS

TASK

TRADE SKILLS TEST

PART A - SKILLS

1. Convert

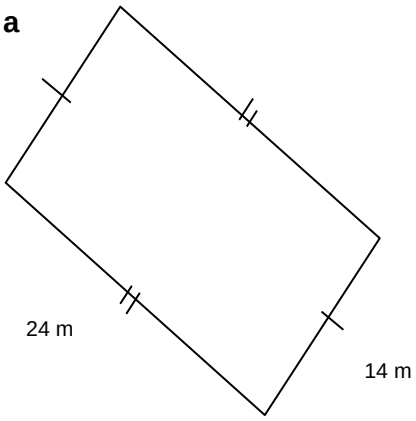
(a) 7.03 m to mm.
(b) 8400000 mm to m.
(c) 6500 grams to kilograms.
(d) 6.39 m to km.

MKSA/ CMI
(4 marks)

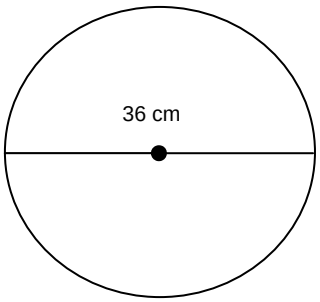
2. Find the perimeter of:

MKSA/ CMI
(4 marks)

a



b



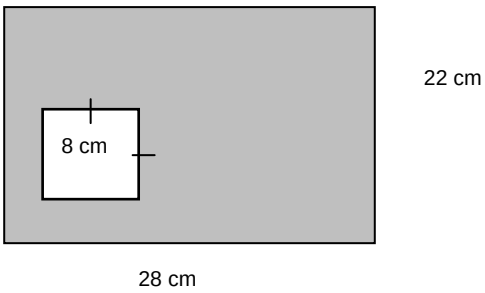
3. A square has a perimeter of 106.4 cm. Find the length of the sides.

MKSA/ CMI
(2 marks)

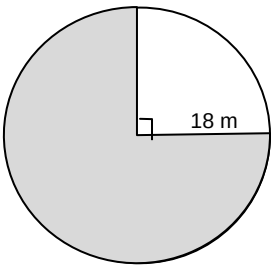
4. Find the shaded areas

MKSA/ CMI
(4 marks)

a



b



5. How many rolls of fencing mesh, each 15 metres long, would be needed to erect a fence 405 metres in length?

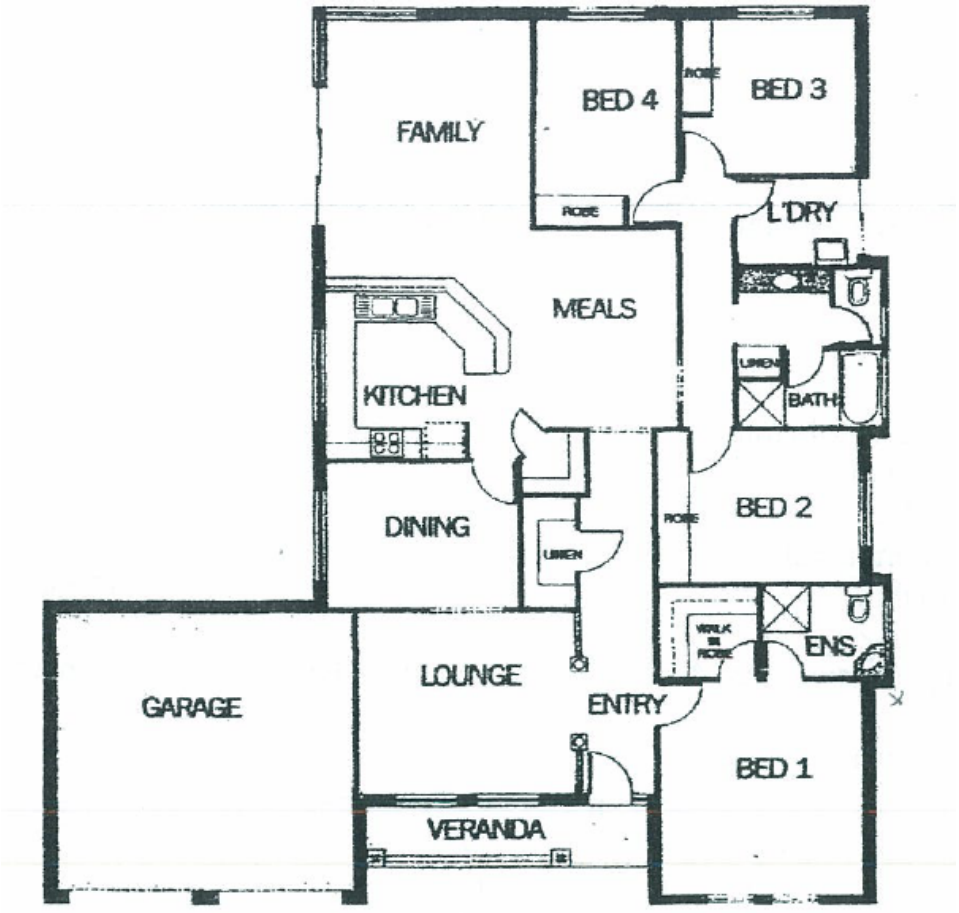
MKSA/ CMI
(1 mark)

PART B - TRADE PATHWAY APPLICATIONS

6. The garage on the house plan below is 6 m x 6m. Find the:

   (a) scale used for the plan below.
   (b) dimensions of the LOUNGE
   (c) length of the robe in BEDROOM 3
   (d) floor area of the ensuite (ENS)
   (e) the length of guttering.
   (f) estimated number of 200mm x 200mm tiles required to tile the veranda floor. Remember that some of the tiles will need to be cut so allow 10% more tiles for waste.

MKSA/ CMI
(9 marks)

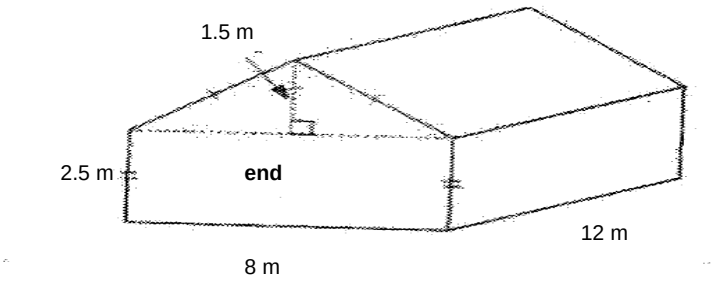


7. What is the cost of laying ' instant lawn' over an 15 m by 12 m back yard if the instant lawn comes in 0.5m wide strips that cost $15 for 10 m. MKSA/ CMI (4 marks)

8. A work shed with the dimensions shown below is to be clad in corrugated iron. The corrugated iron costs $11.25 per square metre. Find the:

   (a) area for both ends of the shed.
   (b) total area to be clad.
   (c) cost of the corrugated iron

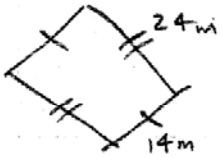
   MKSA/ CMI (6 marks)



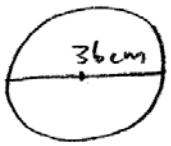
Student Work Sample

Test

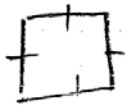
1. a) 7.03 m to mm = 7030 mm ✓
b) 8400000 mm to m = 840 m ✓
c) 6500g to kg = 6.5 kg ✓
d) 639 m to km = 0.0639 km ✓ (3)

2. 

P = 24 + 24 + 14 + 14
= 76 ✓
P = 76 m ✓



P = D × π ✓
= 36 × π
= 11.1 cm ✓ (4)

3. 
P = 106.4
106 ÷ 4 ✓
= 26.6 cm ✓ (2)

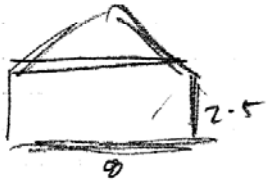
4. a) 616 − 64 = 552 cm show working out. ✓
b) π × r²
18 × 3.14 cm
= 56 m show correct units (1)

5. roll = 15 m
fence is 405 show units
405 ÷ 15 = 27 ✓ (1)

6. a. 4cm The scale, not the measurement ie. 1cm = ?
b. 4 cm × 2.5 cm
c. 1.3 cm ×
d. 1.8 cm × 1.5 cm
= 2.7 cm
e. 7.4
12
11
4
= 45.9 cm
correct method (1)

7. 

$15 for 10m ✗

8. 

A = l × b
= 8 × 2.5
= 20m ✓ (1/2)