VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

**STATEWIDE ASSESSMENT**

# AIM 2007
## Achievement Improvement Monitor

**Year 9**

# MATHEMATICS TEST 2

## STUDENT DETAILS

## TEST INSTRUCTIONS

1. You must do your own work.
2. Do not speak to other students during the test.
3. Raise your hand if you need to speak to the teacher.
4. Follow all directions given to you by the teacher.
5. All questions must be answered using the pencil you have been given. If you need to change an answer, carefully erase it and write another answer.
6. You are NOT permitted to use a calculator of any type.
7. To confirm you have the correct booklet, print your name below.

**Print your name here:**

### *YOU HAVE 40 MINUTES TO COMPLETE THIS TEST*

Victoria
The Place To Be

## Task 1 – Fun Run

A school Fun Run was held to raise money for charity.

The table contains information needed for questions 1 to 7. It shows the ranking, name, time taken and money collected by each of the first ten runners.

Rankings are based on times, **not** money collected.

| First ten runners | | | |
|---|---|---|---|
| Ranking | Student name | Time (minutes : seconds) | Money collected ($) |
| 1 | Jane Hobbs | 28:12 | 150 |
| 2 | Tim Nguyen | 29:50 | 270 |
| 3 | Tony Costa | 30:00 | 50 |
| 4 | Alex O'Brien | 30:24 | 90 |
| 5 | Sue Clayton | 30:48 | 500 |
| 6 | John Berry | 31:08 | 175 |
| 7 | Sally Wilson | 31:20 | 215 |
| 8 | Emily Tutt | 32:10 | 280 |
| 9 | Ben Ross | 32:45 | 195 |
| 10 | Nigel Cook | 33:17 | 75 |
| | | Total | 2000 |

**1** What fraction of the $2000 total did Jane Hobbs collect? Simplify the fraction.

$$\frac{\boxed{\phantom{00}}}{2000} = \frac{\boxed{\phantom{00}}}{40}$$

Write your answers in the boxes

**2** Sue Clayton collected the most money.

What **percentage** of the $2000 total did she collect?

$\boxed{\phantom{000}}$ %

The graph shows the money collected by the first ten runners.

The point showing the money collected by one of the runners is missing from the graph.

**Money collected ($) by first ten runners**
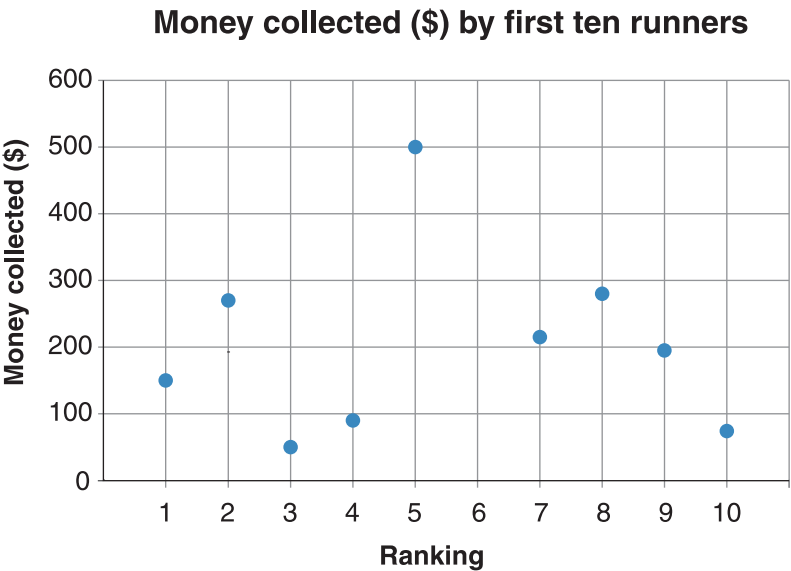


**3**     Plot (✕) the missing point on the graph above.

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**4**     Emily Tutt collected money from 20 different people.

What was the **mean** (average) amount of money, per person, collected by Emily?

$ [        ]

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**5**     What was the **median** amount of money collected by the first ten runners?

$ [        ]

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**6**     How much quicker was Ben Ross than Nigel Cook in the Fun Run?

Write your answer in seconds.

[        ] seconds

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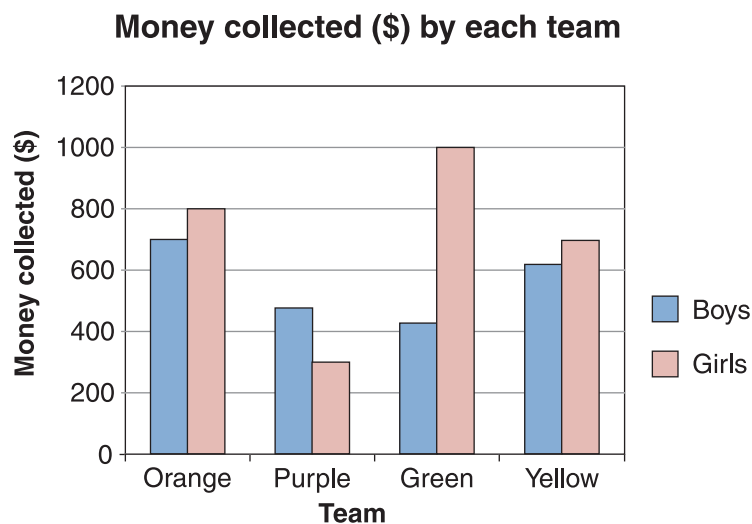**7**     The length of the Fun Run was 5.5 km.

What was Tony Costa's **average running speed** in km per hour?

[        ] km per hour

All students at the school belong to one of four teams.

There is a trophy for the team that collects the most money for the Fun Run.

This graph shows how much money was collected by the boys and girls in each team.

**Money collected ($) by each team**



**8** Which team won the trophy?

[        ] team

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In one team, the boys collected more money than the girls.

**9** Which team was this?

[        ] team

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**10** In this team, approximately how much more money did the boys collect than the girls?

$ [        ]

Kerry buys a large box of coloured team badges for $20.

She sells the badges at the Fun Run for $2 each.

Any profit she makes, after paying for the box of badges, is given to charity.

**11**     If Kerry sells 12 team badges

      **a.**    how much money will she collect from the sales?

        $ [          ]

      **b.**    what is the profit she will give to charity?

        $ [          ]

**12**     How many team badges does Kerry need to sell if she wants to give $10 in profit to charity?

[          ] team badges

**13**     Write an equation that gives Kerry's **profit**, $P$, in terms of the number of team badges, $n$, that she sells.

$P =$ [          ]

# Task 2 – Saving For Charity

Two students, Tim and Claire, are saving money for charity.

Tim saves $2 every day for 6 days.

Claire saves $1 on Day 1, $2 on Day 2, $4 on Day 3, and so on – doubling the amount she saves each day for 6 days.

**14**    What is the **total** amount of money that Tim saves over the 6 days?

$ [          ]

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**15**    Complete the number sentence to show that Claire saved a **total** of $15 after 4 days.

[                                        ] **= $15**

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**16**    How much money did Claire save in **total** after 6 days?

$ [          ]

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Ella also saves money for charity.

She saves $2 on Day 1, $4 on Day 2, $6 on Day 3 and so on – saving $2 **more** each day.

**17**    Plot the graph of Ella's **daily** savings for the first six days.

**Ella's Daily Savings**



Amount ($) vs Day

**18** Write each student's name (Tim, Claire or Ella) beside the rule that gives their **daily** savings.
$D$ is the **daily** savings in dollars on day $n$.

| Student name | Daily savings |
|---|---|
|  | $D = 2n$ |
|  | $D = 2$ |
|  | $D = 2^{n-1}$ |

**19** The **total** amount of money Ella saved, $T$, after $n$ days is given by the rule

$$T = n(n + 1)$$

How many days will it take her to save \$420?

|  | days