

# Grade 6

Assessment of Reading, Writing and Mathematics, Junior Division

## Student Booklet

# Mathematics

SPRING 2007

**RELEASED ASSESSMENT QUESTIONS**

Education Quality and  
Accountability Office



Please note: The format of these booklets is slightly different from that used for the assessment. The items themselves remain the same.

- 1** A pattern is shown below. Each term increases by the same amount.

4, 41, 78, 115, 152, ...

What is the 9<sup>th</sup> term in the pattern?

- A 226
- B 263
- C 300
- D 337

- 2** Two equations are written below.

$$4 \times \Delta = 8$$

$$4 \times \Delta + \square = 18$$

What value does the  $\square$  represent?

- F 2
- G 4
- H 10
- J 22

- 3** The dimensions of a rectangular prism are shown below.

- 5 cm wide
- 4 cm long
- 4 cm high

What is the total surface area of this rectangular prism?

- A  $57 \text{ cm}^2$
- B  $80 \text{ cm}^2$
- C  $96 \text{ cm}^2$
- D  $112 \text{ cm}^2$

- 4** Frank measures the width of a desk by using a metre stick. He marks a spot on the metre stick to indicate the width of the desk, as shown below.



Which is closest to the width of the desk?

- F 0.70 metres
- G 0.75 metres
- H 15 centimetres
- J 80 centimetres

- 5** Four students in Ms. Haswell's class simplify the expression below.

$$6 + 21 \div 7 - 4 \times 2 + 5$$

The first step of each of the four students is shown in the table below.

**Simplifying the Expression**

Student	First Step
Zoe	$6 + 21$
Liam	$7 - 4$
Dennis	$21 \div 7$
Deborah	$2 + 5$

Which student performs a first step that is correct?

- A Zoe
  - B Liam
  - C Dennis
  - D Deborah
- 6** The weather report shows that there is an 80% chance of rain tomorrow. Which fraction represents this chance?

- F  $\frac{1}{2}$
- G  $\frac{3}{4}$
- H  $\frac{4}{5}$
- J  $\frac{5}{6}$

- 7** Lori has a bag of 24 gumballs. She takes 8 gumballs from the bag without looking. The colours of the 8 gumballs Lori takes from the bag are 4 red, 3 blue and 1 yellow.

Using the colours of the gumballs Lori takes from the bag, predict how many gumballs of each colour were in the bag to start.

Explain your thinking.

**8** A school needs to buy 2400 pencils. The prices for pencils at 3 stores are shown below.

- Store A sells 60 pencils for \$1.80.
- Store B sells 30 pencils for \$0.99.
- Store C sells 15 pencils for \$0.55.

The school will purchase the pencils with the lowest price. Which store has the lowest price for 2400 pencils?

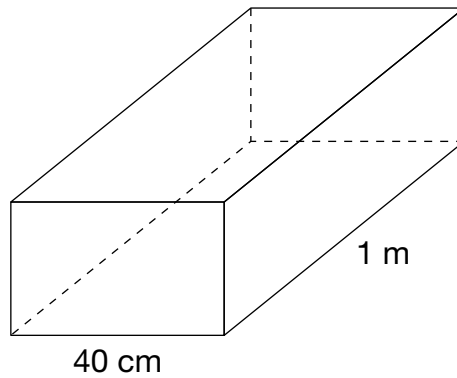
Explain your answer.

Store \_\_\_\_\_ has the lowest price for pencils.

- 9 Using a ruler and protractor, draw a **right** trapezoid with a side measure of 5 cm. Measure and label all angles.

Show your work.

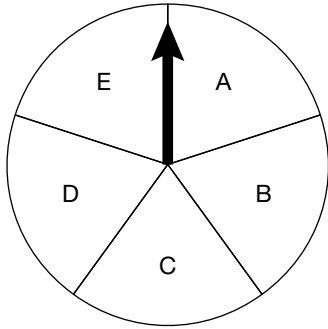
- 10** Jude's fish tank, shown below, holds  $100\,000\text{ cm}^3$  of water when full. Jude decides to pour in water to a height of 5 cm below the top of the tank.



How much water, in  $\text{cm}^3$ , will Jude need to pour into the tank so that the water is 5 cm below the top?

Show your work.

- 11** Sara draws the spinner shown below. It is divided into 5 equal sections.



If Sara spins the arrow 50 times, how many times should she expect the arrow to land on section E?

- A 5
  - B 10
  - C 25
  - D 45
- 12** The heights of the 5 starting players on a basketball team are shown in the table below.

**Starting Players' Heights**

164 cm
168 cm
178 cm
180 cm
180 cm

What is the mean height of the five starting players?

- F 138 cm
- G 174 cm
- H 178 cm
- J 180 cm

- 13** Which diagram below shows an angle of  $120^\circ$ ?

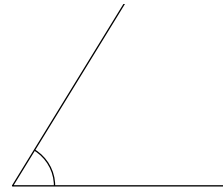


Diagram 1

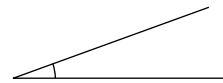


Diagram 2

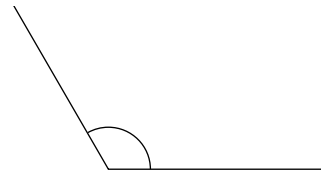


Diagram 3

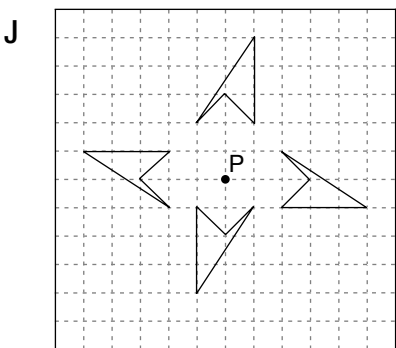
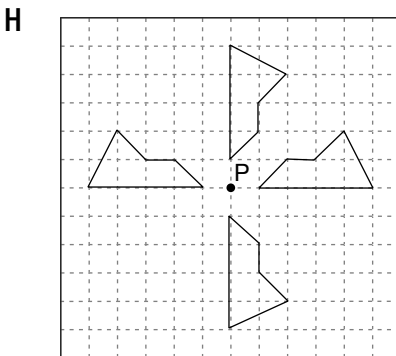
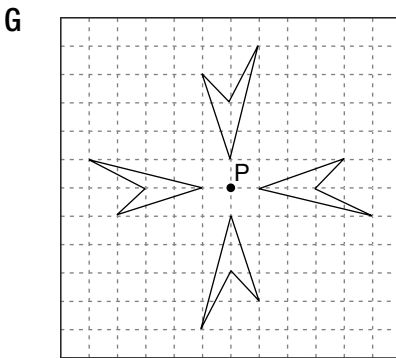
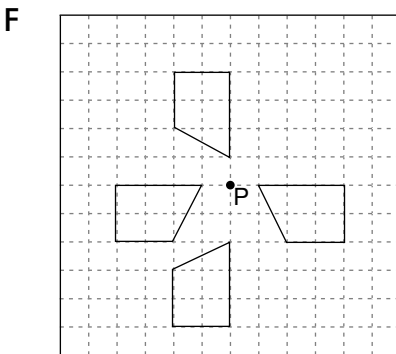


Diagram 4

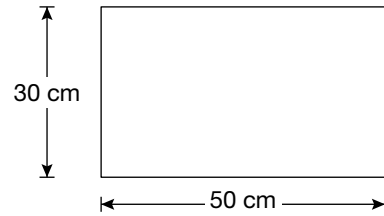
- A Diagram 1
- B Diagram 2
- C Diagram 3
- D Diagram 4



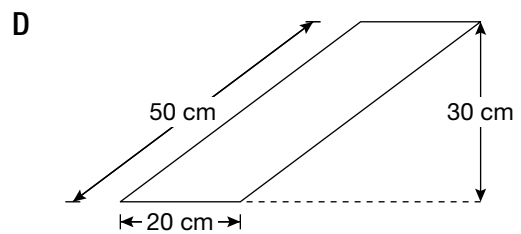
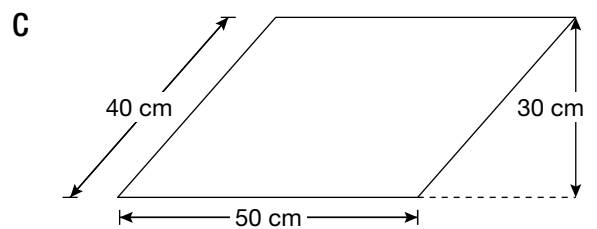
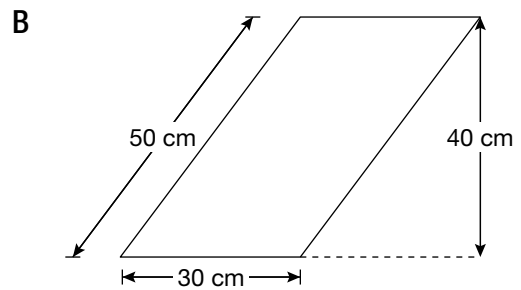
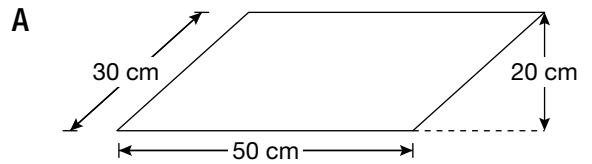
**14** Which drawing has 4 shapes showing 3 clockwise rotations of  $90^\circ$  about point P?



**15** An artist has some paintings that are rectangular and some that are parallelograms. One of her paintings is shaped like the rectangle shown below.



Which of the following parallelograms has the same area as the rectangle?



**16** Sometimes measurement can be estimated, and at other times it must be very accurate. A list of locations where running times might be measured is shown below.

1. Olympics
2. on the playground
3. school track meet

Which list shows the locations in order from the greatest to the least need for accuracy?

- F 3, 2, 1  
 G 3, 1, 2  
 H 1, 2, 3  
 J 1, 3, 2

**17** Francine gets paid \$7.00 for each hour she works. The formula to calculate her pay is shown below.

$$P = 7 \times H$$

Which of the following statements is true?

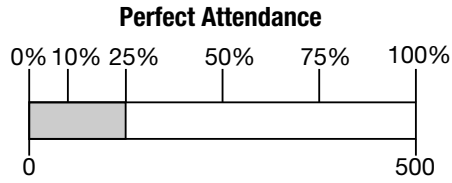
- A  $P$  is the only variable.  
 B  $H$  is the only constant.  
 C  $P$  and  $H$  are variables.  
 D  $P$  and  $H$  are constants.

**18** What number is modelled in the place-value chart below?

Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
3	5		2		0	3

- F 3529.035  
 G 3529.35  
 H 3511.035  
 J 35 011.35

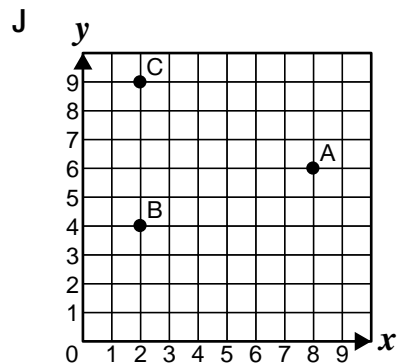
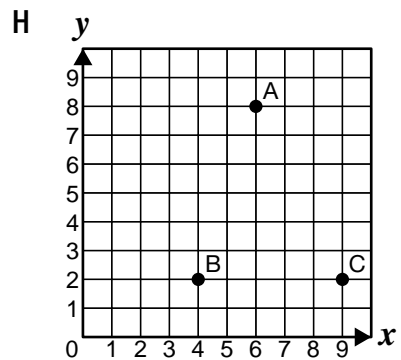
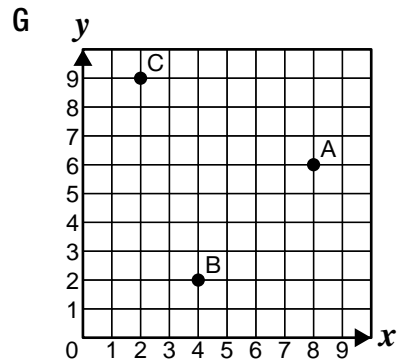
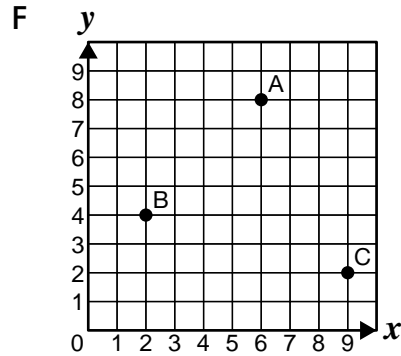
- 19** A school has 500 students. The shaded portion below shows the students with perfect attendance.



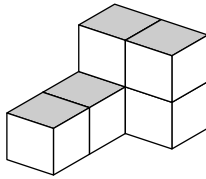
Which of the following is closest to the number of students with perfect attendance?

- A 100
- B 200
- C 300
- D 400

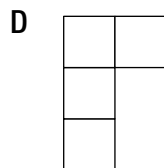
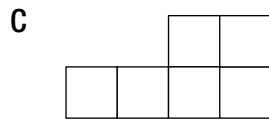
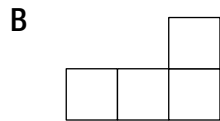
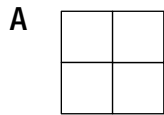
- 20** Which of the following grids shows the correct plotting of the points A(6, 8), B(4, 2) and C(9, 2)?



- 21** The following structure is built with 6 identical cubes.



Which of the following views is **not** possible for this structure?



- 22** The four tables below each follow different input-output rules.

**Table 1**

Input	Output
3	6
7	14
11	22

**Table 2**

Input	Output
1	0
5	12
9	24

**Table 3**

Input	Output
4	9
8	27
12	43

**Table 4**

Input	Output
2	3
6	11
10	19

Which one of the tables follows the input-output rule “triple each input and subtract three to get the output”?

- F** Table 1
- G** Table 2
- H** Table 3
- J** Table 4

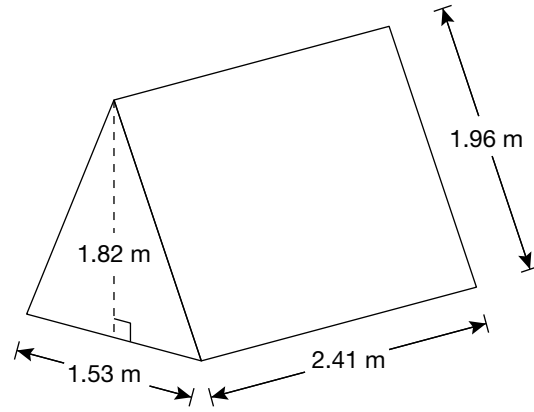
**23** Shanna collects coins each day. She collects 3 coins on Day 1, and the number of coins that she collects each day is double the number of coins she collected the day before. On what day will Shanna collect **exactly** 96 coins?

- A Day 5
- B Day 6
- C Day 7
- D Day 8

**24** A box of modelling clay that weighs 3.5 kg is divided equally among 14 students. How many grams does each student receive?

- F 0.25 g
- G 4 g
- H 49 g
- J 250 g

**25** Cynthia purchases a tent for her camping trip, as shown below. During one night of the camping trip, it rains. The floor of the tent is the only part that stays dry.



What is the area of the part of Cynthia's tent that gets wet?

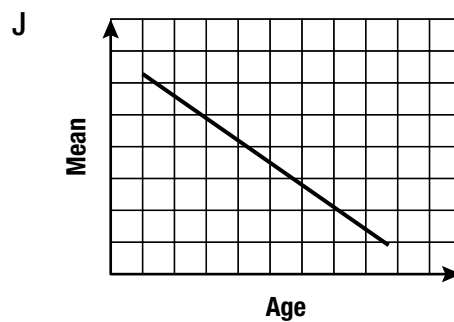
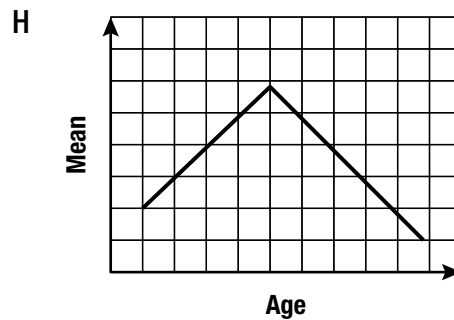
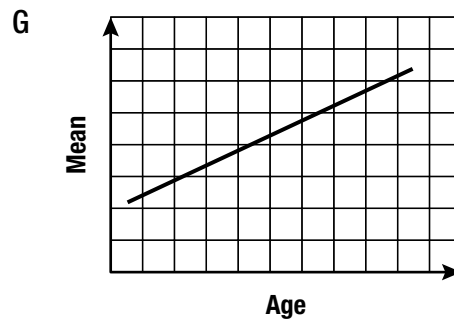
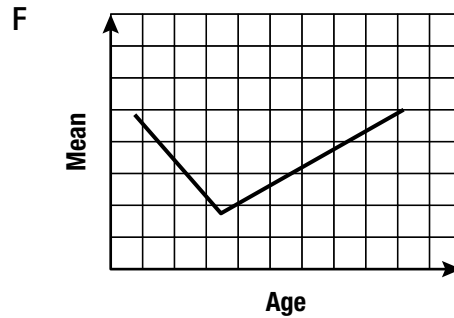
- A  $10.84 \text{ m}^2$
- B  $12.23 \text{ m}^2$
- C  $15.01 \text{ m}^2$
- D  $16.96 \text{ m}^2$

- 26** Some students are asked to test a new video game. The students are sorted by their ages, and the mean score for each age group is calculated. The table below shows a comparison of age and the mean of the video game scores.

**Video Game Scores**

Age	Mean
11	400
12	450
13	500
14	550
15	500
16	450
17	400
18	350

Which graph below best represents the results from this table?



- 27** When Jennifer and Tom visit another country, they find two types of coins are used there, one with a Q on it and one with an E on it. Jennifer has 13 Q coins and Tom has 5 Q coins and 7 E coins. If Jennifer's coins have a total value of \$0.65 and Tom's coins have a total value of \$3.75, what is the value of each type of coin?

Show your work.

The value of the Q coin is \_\_\_\_\_.

The value of the E coin is \_\_\_\_\_.

- 28** Kyla is a member of the starting lineup of the school's basketball team. The heights of the other starting players are shown below.

**160 cm, 156 cm, 148 cm, 147 cm**

The mean height of the starting lineup is 152.4 cm. What is Kyla's height?

Show your work.

Kyla's height is \_\_\_\_\_.

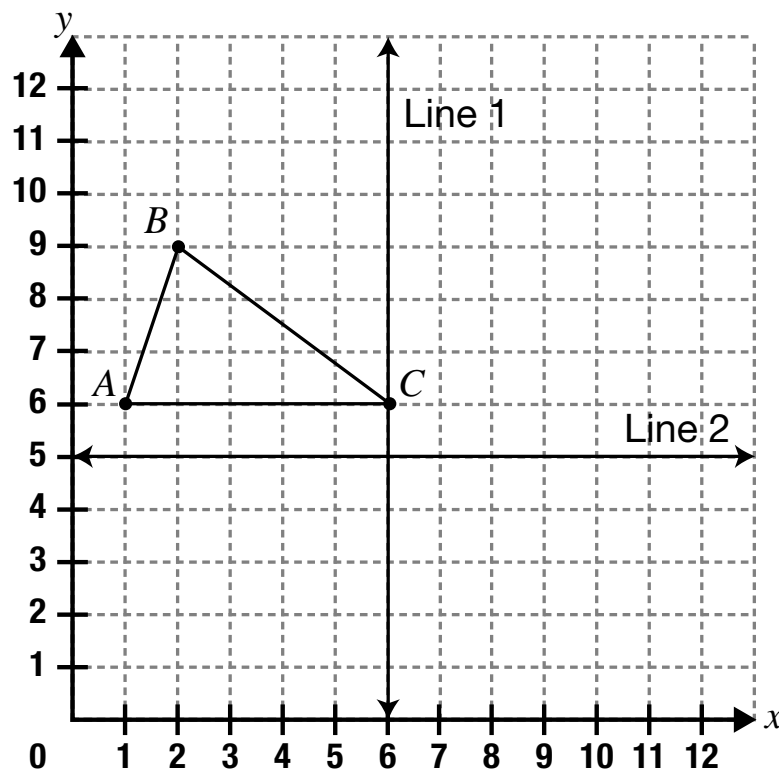


**29** Write the following fractions in order from least to greatest.

$$\frac{3}{2}, \frac{2}{3}, \frac{1}{4}, \frac{4}{5}$$

Explain your thinking.

- 30** The drawing below shows a grid with  $\triangle ABC$ , Line 1 and Line 2. On the grid, reflect  $\triangle ABC$  across Line 1 and then reflect the new triangle across Line 2.



Describe a rotation that would have the same result as these two reflections.

31 Two equations are shown below.

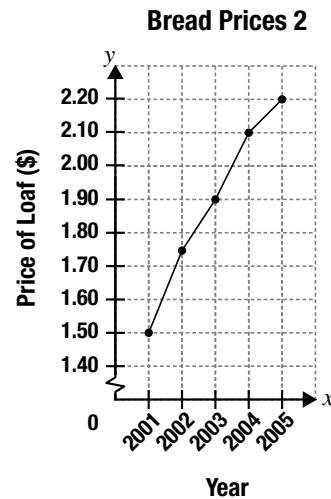
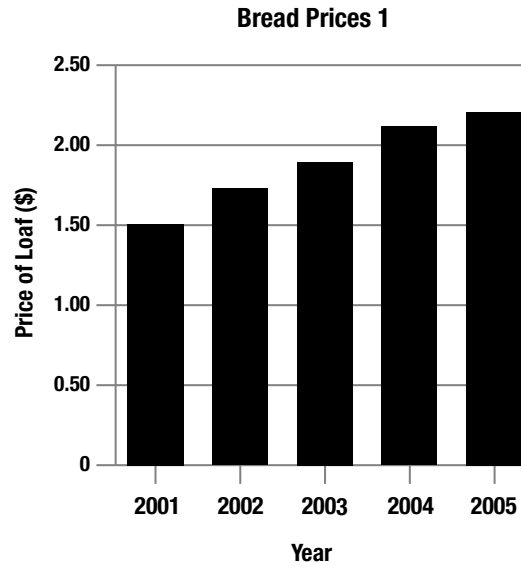
$$n + 3 = 9$$

$$n + 3 + k = 23$$

If the equations are true, what is the value of  $k$ ?

- A 6
- B 9
- C 14
- D 20

32 The two graphs below show the same data about the mean price of a loaf of bread for each year during the last 5 years.



Graph 1 appears to show that the price of a loaf of bread has not increased much during the 5 years. Graph 2 appears to show that the price of a loaf of bread has increased by a large amount during the 5 years.

Which parts of the graphs are **most** important in making the graphs appear to show two different things?

- F the years
- G the scales
- H the types
- J the titles

**33** Jane has a package of 40 cards: 30 of the cards are red and 10 of the cards are black. If Jane randomly picks 8 cards, how many cards should she expect to be red?

- A 2
- B 4
- C 6
- D 8

**34** The table below shows the number of pop cans four classes collect. It also shows the number of days each class collects during the recycling program.






Class	Pop Cans Collected	Days Collected
Class 1	7284	40
Class 2	1250	25
Class 3	3742	20
Class 4	2705	50

Which class collects the greatest number of pop cans per day?


- F Class 1
- G Class 2
- H Class 3
- J Class 4

**35** Some students were asked in a survey, “What is your favourite sport?” The graph below shows the results of the survey.

**Favourite Sport**

Favourite Sport	Number of Students
Hockey	
Basketball	
Volleyball	
Soccer	
Other Sports	

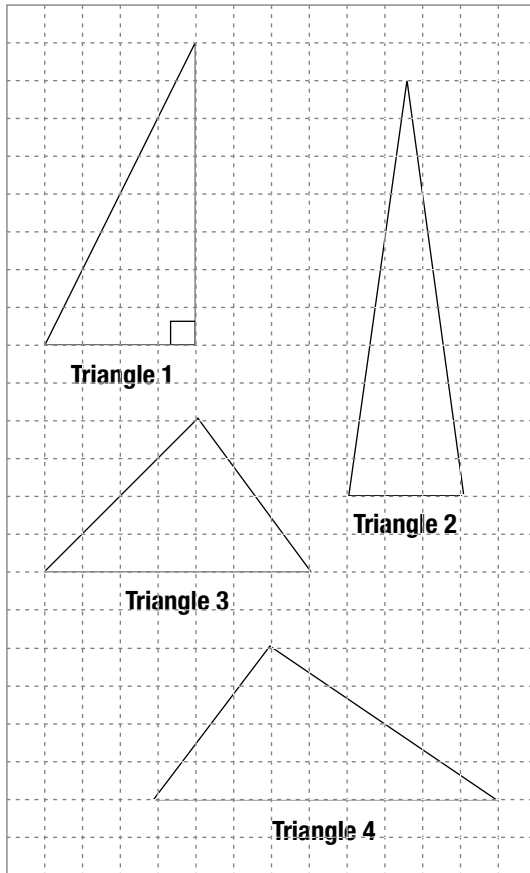
**Key**

 represents 4 students

What percent of the students chose hockey as their favourite sport?

- A 2.5%
- B 10%
- C 20%
- D 25%

**36** Four triangles are shown on the grid below.



Which triangle has an area of 18 square units?

- F Triangle 1
- G Triangle 2
- H Triangle 3
- J Triangle 4