Class:	Candidate Name:	Candidate Index Number:

SHUQUN SECONDARY SCHOOL

2011 Mid-Year Examination
Secondary 1 Express

MATHEMATICS

Paper 1 — 09 May 2011

Candidates answer on the Question Paper — **1 Hour 30 Minutes**

INSTRUCTIONS TO CANDIDATES

Write your name, class and class index number in the spaces at the top of this page and all the work you hand in.
Write in blue or black pen.
You may use a pencil for any diagrams or graphs.
Do not use staples, paper clips highlighters, glue or correction fluid.

Answer **all** questions.

If working is needed for any question, it must be shown with the answer.
Omission of essential working will result in loss of marks.

You are expected to use a scientific calculator to evaluate explicit numerical expressions.

If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

For π, use either your calculator value or 3.142, unless the question requires the answer in terms of π.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

The total of marks for this paper is **50**.

This question paper consists of **9** printed pages.

[Turn over

Answer all questions.

Downloaded from SingaKids.com

1. Express 8213.3298

a) correct to 2 decimal places,

b) correct to 3 significant figures.

Ans: a) _____ [1]

b) _____ [1]

---

2. Evaluate

a) $\frac{\sqrt[3]{125}}{5^3}$,

b) $6^2 + \sqrt{2.4} \times 1.6$.

Ans: a) _____ [1]

b) _____ [1]

---

3. Write down the next term for each sequence.

a) 1, 5, 11, 19, 29, ____ ,

b) 1, 4, 9, 16, ____ .

Ans: a) _____ [1]

b) _____ [1]

---

4. Arrange the following numbers in ascending order.

Downloaded from SingaKids.com

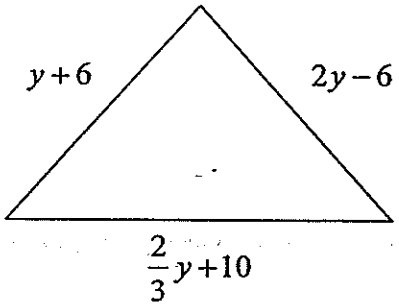
a) 9, 0, – 5, – 11

b) $\frac{22}{50}$, $0.\dot{4}$, 0.409, 47%

Ans: a) _____ [1]

b) _____ [1]

5. The diagram below shows a triangle with sides of length $(y+6)$cm, $(2y-6)$ cm and $\left(\frac{2}{3}y+10\right)$cm. Find the perimeter of the triangle.



Ans: _____ cm [2]

6. Alanie bought *x* pencils for $42 and 6 pens for $*y*.

Downloaded from SingaKids.com

a) Write an algebraic expression in terms of x for the price of one pencil.

b) Find and simplify an algebraic expression in terms of x and y for the cost of 2 pencils and 3 pens.

Ans: a) $\$$_____ [1]

b) $\$$_____ [2]

---

7. Solve

a) $20+3y \leq 4$,

b) $\frac{2}{3}x-\frac{1}{4}x > 3-1\frac{7}{10}$.

Ans: a) _____ [1]

b) _____ [2]

---

8. Find the HCF of 20, 60 and 70.

Downloaded from SingaKids.com

Ans: _____ [3]

---

9. a) List all the prime numbers from 0 to 10.

b) List down the rational numbers from the list of numbers given below.

8 , 2.6 , $\sqrt{3}$, $0.\dot{3}$

Ans: a) _____ [1]

b) _____ [2]

---

10. Mary buys 3 files at 49 cents each and 5 pens at $1.95 each at the school

Downloaded from SingaKids.com

bookshop. The shopkeeper asks for $12.50. Show, **using estimation**, that the shopkeeper has made a mistake. [3]

11. Three traffic lights along a street turn red at regular intervals of 2 minutes, 1 minute 20 seconds and 1 minute 18 seconds respectively. If all the traffic lights turned red together at 08 30, find the next time when this occurs again.

Ans: _____ [3]

12. Without the use of a calculator, evaluate

Downloaded from SingaKids.com

a) $[-3+(-17)-10]-[(-5)^2+(-12)-(-8)]$,

b) $(-7)^2+(-2)^3-[(-26)+40-\sqrt[3]{125}\times(-9)]$.

Ans: a) _____ [2]

b) _____ [2]

---

13. Evaluate the following algebraic expressions if $a = 6$, $b = -2$ and $c = 1$:

a) $4b - 2a - 7bc$,

b) $3c^2 + 5(6a + b)$.

Ans: a) _____ [2]

b) _____ [2]

---

14. Expand and simplify

Downloaded from SingaKids.com

a) $5k - 2(p - 3k) + 2p + k$,

b) $a(b + 2) - b(2a - 5b)$.

Ans: a) _____ [2]

b) _____ [2]

---

15. Factorise

a) $24a + 4ab$,

b) $8x(2e - 3) - 5(2e - 3)$,

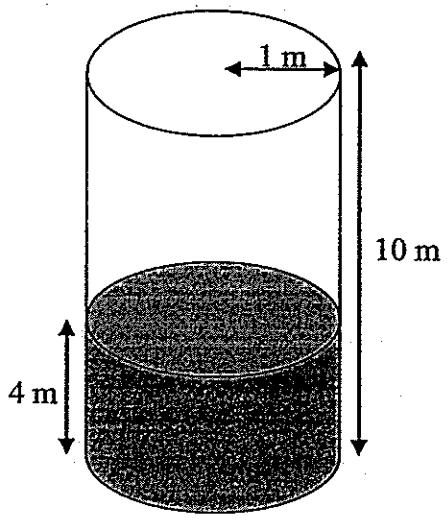
c) $4ax - ay + 8bx - 2by$.

Ans: a) _____ [1]

b) _____ [1]

c) _____ [2]

Downloaded from SingaKids.com



The diagram shows an open cylindrical tank of radius 1 m and height 10 m. The tank contains water to a depth of 4 m. (Take $\pi = 3.142$)

a) Calculate the area of the tank which is in contact with the water.

b) Calculate the volume of the tank.

c) If a spherical metal ball of volume 15 m^3 is dropped into the tank, calculate the increase in the water level, rounding off your answer to 2 decimal places.

Ans: a) _____ m^2 [2]

b) _____ m^3 [2]

c) _____ m [2]

End of Paper

Answers

Downloaded from SingaKids.com

Downloaded from SingaKids.com

1a) 8213.33 b) 8210
2a) 0.04 b) 38.5
3a) 41 b) 25
4a) -11, -5, 0, 9
5) 11y/3 + 10
6a) 42/x b) 84/x + y/2
7a) – 5.33 b) 3.12
8) 10
9a) 2, 3, 5, 7 b) 8, 2.6, 0.3
11) 0922
12a) -51 b) -18
13a) -6 b) 173
14a) 12k b) $2a - ab + 5b^2$
15a) 4a(6 + b) b) (2e -3)(8x – 5) c) (4x – y)(a + 2b)
16a) 28.278 b) 31.42 c) 4.77

Downloaded from SingaKids.com

Class:	Candidate Name:	Candidate Index Number:

SHUQUN SECONDARY SCHOOL

2011 Mid-Year Examination
Secondary 1 Express

MATHEMATICS

Paper 2

09 May 2011

Additional Material: Answer Paper

1 Hour 30 Minutes

INSTRUCTIONS TO CANDIDATES

Write your name, class and class index number in the spaces at the top of this page and all the work you hand in.
Write in blue or black pen.
You may use a pencil for any diagrams or graphs.
Do not use staples, paper clips highlighters, glue or correction fluid.

Answer **all** questions.

If working is needed for any question, it must be shown with the answer.
Omission of essential working will result in loss of marks.

You are expected to use a scientific calculator to evaluate explicit numerical expressions.

If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

For π, use either your calculator value or 3.142, unless the question requires the answer in terms of π.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

The total of marks for this paper is **50**.

This question paper consists of **5** printed pages.

[Turn over

Answer ALL questions.

Downloaded from SingaKids.com

1. Simplify $\frac{x+2}{3}+\frac{3(x-2)}{4}-\frac{2(2x+1)}{5}$. [3]

---

2. a) Given that $69696 = 2^6 \times 3^2 \times 11^2$, evaluate $\sqrt[3]{69696}$ giving your answer in index notation. [1]

b) Find the largest integer that is a factor of both 360 and 160. [3]

---

3. a) On Saturday, Jane used her ez-link card to travel on the MRT train from Jurong East to City Hall station. The initial value of her card was \$0.25. At the end of the ride, the card stored value was – \$1.28. How much did the ride cost? [1]

b) At City Hall, Jane went to the top-up machine to top-up \$20 to her ez-link card. What is the stored value after the top-up? [1]

c) Peter travels to work and back by bus daily. A ride between his home and his workplace costs \$2.10. Given that the initial stored value in his ez-link card is \$20, how many days can he use the card before the stored value is negative? [2]

Downloaded from SingaKids.com

4. A singer, Thomas, decided to hold a press conference for his latest song album. $\frac{1}{10}$ of the seats were reserved for the invited media representatives and $\frac{2}{15}$ of the seats were reserved for the staff of his recording company. The remaining seats were reserved for his fan club members.

a) What fraction of the seats was reserved for his fan club members? [2]

b) If the recording company had 68 staff, what was the total number of seats required for the press conference? [2]

c) Hence, find the number of media representatives invited for the press conference. [1]

---

5. Dennis, Jonathan and Kai Yu shared 110 marbles. Dennis received $\frac{2}{3}$ as many marbles as Jonathan and Kai Yu received twice as many marbles as Jonathan.

a) If Jonathan received x marbles, write an expression in terms of x for
   i) the number of marbles Dennis received, and [1]
   ii) the number of marbles Kai Yu received. [1]

b) Form an equation in terms of x. [1]

c) Solve the equation in b) and find the number of marbles Dennis received. [3]

Downloaded from SingaKids.com

6. The trapezium shown in Figure 1 is the shaded surface of the trapezoidal prism shown in Figure 2.

a) Calculate the area of the trapezium in Figure 1. [2]

b) If the volume of the prism is 160 cm^3, find the value of x in Figure 2. [2]

c) Calculate the total surface area of the prism. [2]

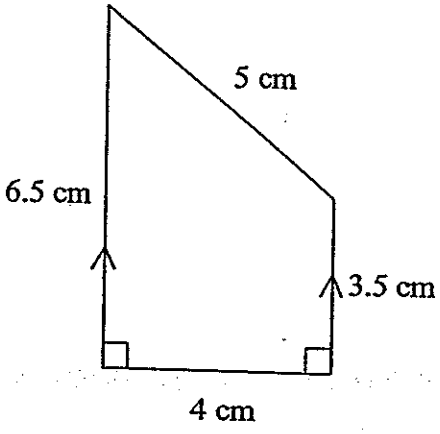


Figure 1

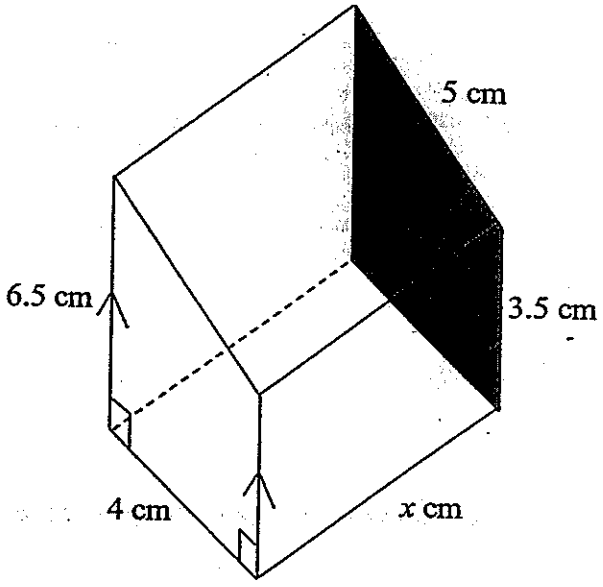


Figure 2

Downloaded from SingaKids.com

7. Expand and simplify

a) $p(2x-7)-3p(-x+5)$, [2]

b) $\left(\frac{3a}{5b}\right)^2 \div \frac{a}{3b} + \sqrt[3]{\frac{64}{125}}$, [3]

c) $\frac{4}{5}(20s+15t)-\frac{5}{6}(36t-42u)-\frac{1}{2}(12s-16u)$. [2]

---

8. The perimeter of a rectangle is $(20x + 8y - 12)$ cm and its length is $(7x + y)$ cm.

a) Show that the breadth of the rectangle, in terms of x and y, is $(3x + 3y - 6)$ cm. [2]

b) If $x = 5$, and $y = -2$, find

i) the perimeter of the rectangle, [2]

ii) the area of the rectangle. [3]

---

9. a) Subtract $2x - 5y + 9$ from $x + 8y - 7$. [3]

b) Solve the equation $3x - 5(4 - x) = 36$. [2]

c) If $7(3x - 4) - 5(x - 2) = 0$, find the value of $8x + 9$. [3]

End of Paper

Downloaded from SingaKids.com

Answers

1. (17x – 7 4)/60
2. a) 2^3 x 3 x 11 b) 40
3. a) $1.53 b) $18.72 c) 5 days later
4. a) 23/30 b) 510 c) 51
5. a) 2x/3, 2x b) 2x/3 + x + 2x = 110 c) 20
6. a) 20 b) 8 c)192
7. a) 5px – 22p b) (27a + 20b)/25b c) 10s – 18t + 43u
8. bi) 72 ii) 99
9. a) 13y – x – 16 b)7 c) 18

Downloaded from SingaKids.com