

**CPFS
EXAMINATION SAMPLE
MATHEMATICS**

Time allowed: 1 hour 30 minutes

ANSWER ALL QUESTIONS IN DETAIL, SHOWING ALL YOUR WORK ON THE SAME PAGE AS THE QUESTION. THE ANSWERS PROVIDED IN THE DRAFT PAGE OR IN SEPARATE SHEETS WILL NOT BE CONSIDERED.

NO BOOKS, NOTES, CALCULATORS OR ANY SORT OF ASSISTING MATERIAL ARE ALLOWED.

KITOB, DAFTAR, KALKULYATOR YOKI BOSHQA YORDAMCHI MATERIALLARDAN FOYDALANISH TAQIQLANADI.

ПОЛЬЗОВАНИЕ КНИГОЙ, ТЕТРАДЬЮ, КАЛЬКУЛЯТОРОМ ИЛИ ЛЮБЫМ ВСПОМОГАТЕЛЬНЫМ МАТЕРИАЛОМ ЗАПРЕЩАЕТСЯ.

Application number:	
Signature:	

PLEASE DO NOT TURN OVER THIS PAGE UNTIL TOLD TO DO SO

Question 1

Katie and her family ordered a pizza for dinner and ate $\frac{3}{4}$ of it. The next day, Katie ate $\frac{1}{2}$ of what was left over for lunch. What fraction of the original pizza did Katie eat for lunch?

Answer without the detailed solutions will not be marked. Provide the detailed solution below:

Circle the correct answer:

- a) $\frac{1}{8}$
- b) $\frac{1}{6}$
- c) $\frac{1}{4}$
- d) $\frac{1}{2}$

Total for page 5 marks

Question 2

Simplify the complex fraction $\frac{\frac{9}{y^2} - \frac{1}{x^2}}{\frac{3}{y} + \frac{1}{x}}$

Answer without the detailed solutions will not be marked. Provide the detailed solution below:

Circle the correct answer:

a) $\frac{3x-y}{xy}$

b) $3x-y$

c) $\frac{9x^2-y^2}{4}$

d) $\frac{3x+y}{xy}$

Total for page 5 marks

Question 3

Ron is half as old as Sam, who is three times as old as Ted. The sum of their ages is 55.
How old is Ron?

Answer without the detailed solutions will not be marked. Provide the detailed solution below:

Circle the correct answer:

- a) 5
- b) 8
- c) 10
- d) 15

Total for page 5 marks

Question 4

Bob notices that the ratio of boys to the total students in his class is 3:4. If there are 28 students in his class. How many of them are girls? What is the percentage of boys in the class?

Answer without the detailed solutions will not be marked. Provide the detailed solution below:

Circle the correct answer:

- a) 7, 20%
- b) 14, 75%
- c) 21, 25%
- d) 24, 25%

Total for page 5 marks

Question 5

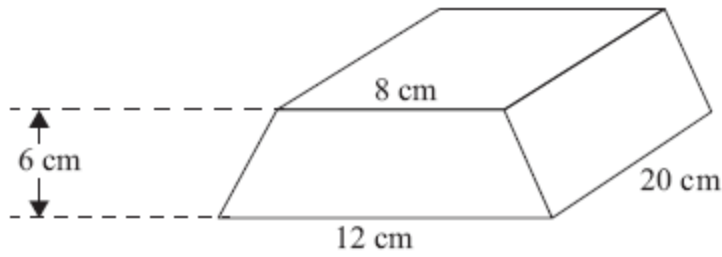


Diagram **NOT**
accurately drawn

The diagram shows a solid prism made from metal.

The cross-section of the prism is a trapezium.

The parallel sides of the trapezium are 8 cm and 12 cm.

The height of the trapezium is 6 cm.

The length of the prism is 20 cm.

The density of the metal is 5 g/cm^3 . (*Density = Mass/Volume*)

Calculate the mass of the prism.

Give your answer in kilograms.

..... kg

Total for page 5 marks

Question 6

a) Simplify fully $\frac{2x^2 - 7x + 3}{x^2 - 9}$

Answer a)

3 marks

b) Work out $(3 + \sqrt{8})(3 - \sqrt{8})$

Give your answer in its simplest form.

Answer b)

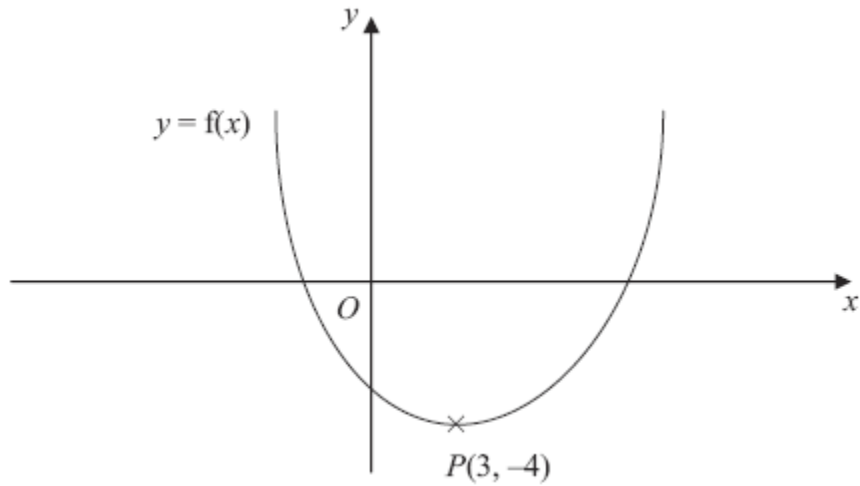
2 marks

Total for page 5 marks

Question 7

This is a sketch of the curve with the equation $y = f(x)$.

The only minimum point of the curve is at $P(3, -4)$.



- (a) Write down the coordinates of the minimum point of the curve with the equation $y = f(x - 2)$.

(..... ,)

2 marks

- (b) Write down the coordinates of the minimum point of the curve with the equation $y = f(x + 5) + 6$

(..... ,)

3 marks

Total for page 5 marks

Question 8

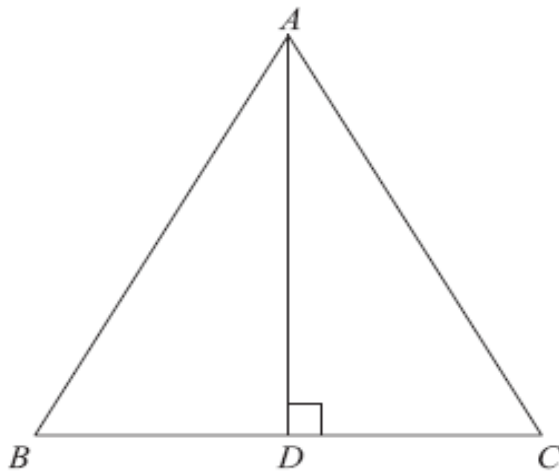


Diagram **NOT**
accurately drawn

ABC is an equilateral triangle.

D lies on BC .

AD is perpendicular to BC .

(a) Prove that triangle ADC is congruent to triangle ADB .

Answer a)

3 marks

(b) Hence, prove that $BD = \frac{1}{2} AB$.

Answer b)

2 marks

Total for page 5 marks

Question 9

- a) Mina is going on holiday to Mexico and needs to buy some mosquito repellent before she goes



If she buys it in the US before she goes each bottle will cost \$3.35 each. If she waits until she gets to Mexico each bottle will be 20.16 Pesos.

If the exchange rate is \$1 = 9.6 Pesos, find out much, in US\$, she can save by buying 3 bottles in Mexico.

Answer a)

2 marks

- b) On Mina's journey to Mexico the plane flies the 2000 km distance at 1600 km/h. On the way back there is a head wind and the plane only flies at a speed of 1000 km/h.

Find the average speed for the two journeys. **Give your answer to the nearest km/h**

Answer b)

3 marks

Total for page 5 marks

Question 10

On the grid below

a) Draw the curve $y = x^2 + 2$

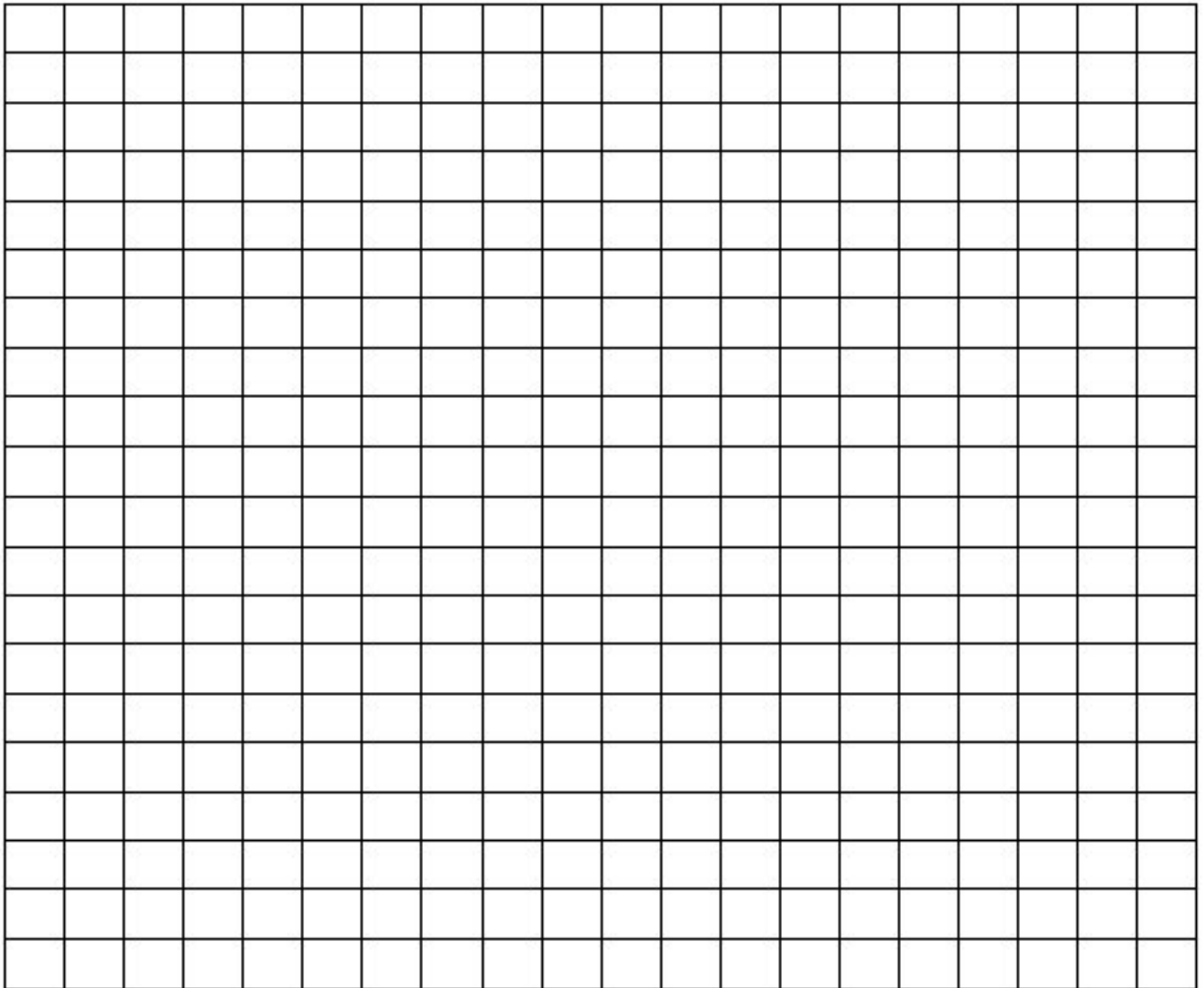
Answer..... 2 marks

b) Draw the curve $y = x^2 - 4$

Answer 2 marks

YOU MUST LABEL YOUR AXES

c) Shade the area described by the equations $y < x^2 + 2$ and $y > x^2 - 4$ 1 mark



Total for page 5 marks

END OF TEST
TOTAL FOR TEST 50 MARKS

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