Centre Number	Candidate Number	Candidate Name

NAMIBIA SENIOR SECONDARY CERTIFICATE

MATHEMATICS ORDINARY LEVEL

4324/2

PAPER 2 (Extended)

1 hour 30 minutes

Marks 80

2017

Additional Materials: Non programmable calculator

INSTRUCTIONS AND INFORMATION TO CANDIDATES

- Candidates answer on the Question Paper in the spaces provided.
- Write your Centre Number, Candidate Number and Name in the spaces at the top of this page.
- Write in dark blue or black pen.
- You may use a soft pencil for any diagrams or graphs.
- Do not use correction fluid.
- Do not write in the margin *For Examiner's Use*.

- Answer **all** questions.

- If working is needed for any question it must be shown below, or where working is indicated.
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Non-programmable calculators may be used.
- 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 for angle sizes to **one** decimal place.
- For π, either use your calculator value, or use 3.142.

For Examiner's Use

Marker	
Checker	

ORDINARY LEVEL EXTENDED

This document consists of **15** printed pages and **1** blank page.

Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

For Examiner's Use

1 Write the following numbers in ascending order, smallest first.

$\sqrt{\frac{7}{9}}$ $(0.96)^3$ $\frac{8}{100}$ 0.0885

Answer ..... < ..... < ..... < ..... [2]

---

2 An integer x is between −5 and 30.

Write down the value of x when it is

(a) 3 less than −1,

Answer **(a)** ..... [1]

(b) 2^4,

Answer **(b)** ..... [1]

(c) a prime factor of 217.

Answer **(c)** ..... [1]

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3 Selma arrived at a bus station at 11:15. Her bus had left half an hour before she arrived.

(a) At what time did her bus leave?

Answer **(a)** ..... : ..... [1]

(b) The next bus will leave at 12:06. How long must she wait?

Answer **(b)** ..... [1]

For Examiner's Use

4 Ten weeks after the birth of a baby elephant, its mass was 165 kg. The ratio, mass after ten weeks : mass at birth is 11 : 6.

Calculate the baby elephant's mass at birth.

Answer ..... kg [2]

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5 The scale on a map is 1 : 50 000.

(a) Calculate the actual distance between two towns A and B which are 30 cm apart on the map. Give your answer in kilometres.

Answer **(a)** ..... km [2]

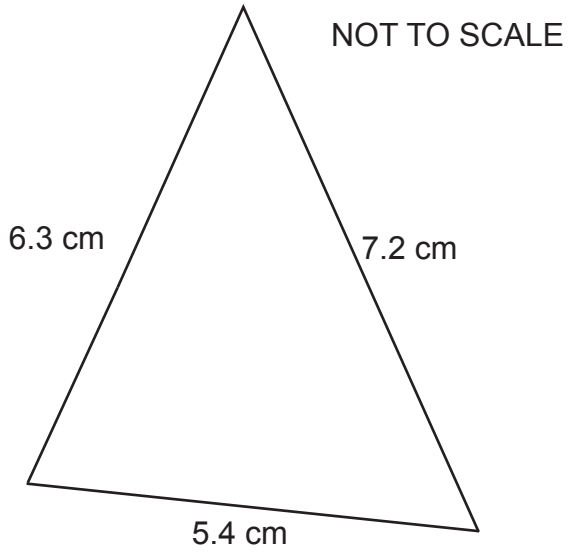
(b) A field has an area of 540 400 m^2.

Calculate the area of the field on the map in cm^2.

Answer **(b)** ..... cm^2 [2]

For Examiner's Use

6 The triangle below has sides of lengths 6.3 cm, 7.2 cm and 5.4 cm correct to 1 decimal place.



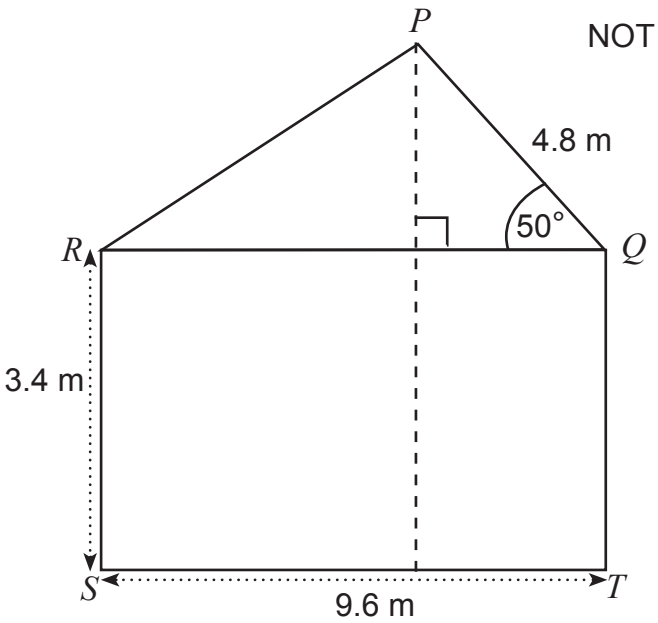
Calculate the greatest possible perimeter of the triangle.

Answer ..... cm [2]

For Examiner's Use

7 The diagram below shows the front view of a house with a roof PQR and a wall $QRST$. The height of the wall is 3.4 m and the length of the wall is 9.6 m.

The angle of elevation of QP from QR is 50°, the length of PQ is 4.8 m.



Calculate

(a) the height of P above ground level TS,

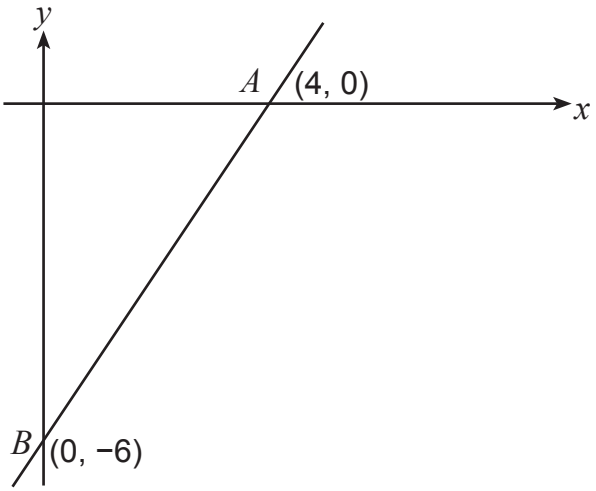
Answer **(a)** ..... m [3]

(b) PR.

Answer **(b)** ..... m [3]

For Examiner's Use

8 The diagram shows the line AB. The coordinates of A are (4, 0) and the coordinates of B are (0, −6).



Find,

(a) the equation of the line AB in the form $ax + b + c = 0$,

Answer **(a)** ..... [3]

(b) the coordinates of the mid-point of the line AB,

Answer **(b)** (..... , ...) [2]

(c) the equation of the perpendicular bisector of the line AB.

Answer **(c)** ..... [3]

For Examiner's Use

9 **(a)** Subtract $2x^3 - 2x^2 + x - 12$ from $2x^3 + 15x + 7x^2 + 6$.

Answer **(a)** ..... [2]

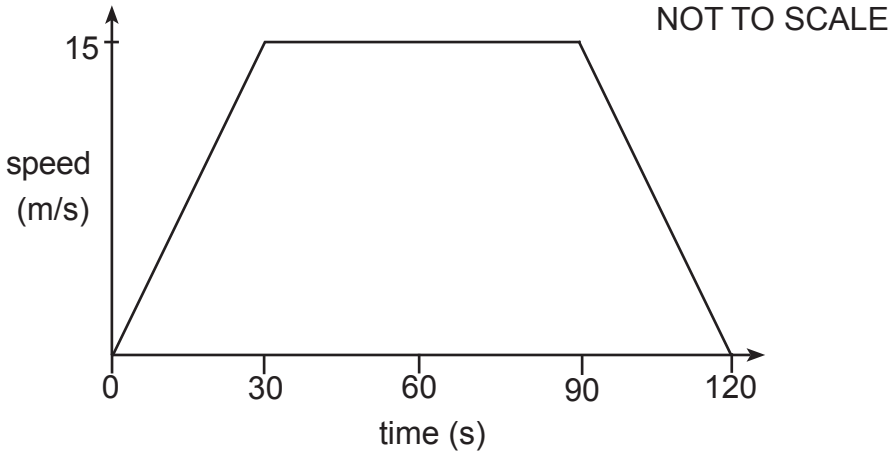
(b) Find the quotient and the remainder when $7x^3 + 2x^2 - 16$ is divided by $x - 2$.

Answer **(b)** Quotient = ...

Remainder = ... [4]

For Examiner's Use

10 The diagram below shows a speed-time graph of a bus between two bus stops.



Calculate

(a) the acceleration during the first 30 seconds,

Answer **(a)** ..... m/s^2 [2]

(b) the total distance travelled for the whole journey,

Answer **(b)** ..... m [2]

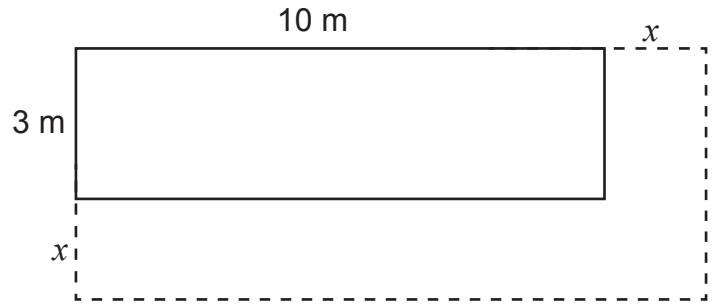
(c) the average speed for the whole journey.

Answer **(c)** ..... m/s [1]

For Examiner's Use

11 The diagram shows the surface area of a rectangular swimming pool which is 10 m long and 3 m wide. The area is doubled by increasing the length and width by the same amount (x).

NOT TO SCALE



(a) Write down an equation in x if the surface area is doubled.

Answer **(a)** ..... [1]

(b) Solve the equation in part **(a)**.

Answer **(b)** ..... [3]

(c) Find the new dimensions of the swimming pool.

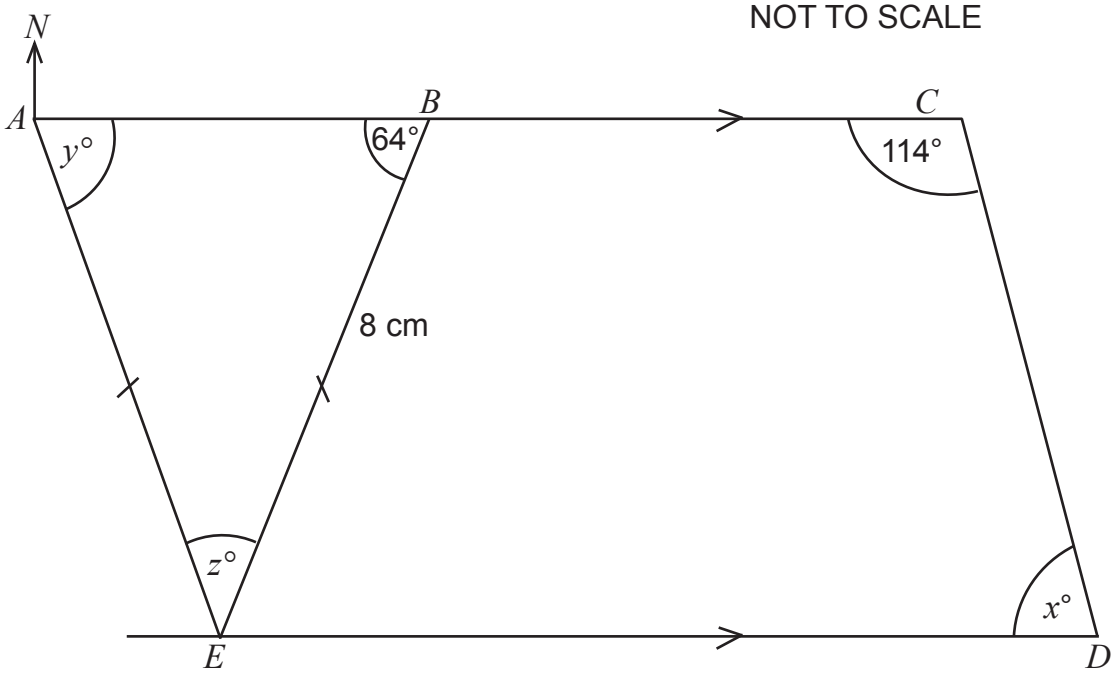
Answer **(c)** length ..... m

width ..... m [2]

For Examiner's Use

12 In the diagram below, the line ABC is parallel to the line ED.
It is given that AE = BE = 8 cm, angle ABE = 64° and angle ACD = 114°.

NOT TO SCALE



(a) What is the geometrical name of quadrilateral $ACDE$?

Answer **(a)** ..... [1]

(b) Calculate the value of

(i) x,

Answer **(b) (i)** .....° [2]

(ii) y,

Answer **(b) (ii)** .....° [1]

(iii) z.

Answer **(b) (iii)** .....° [1]

(c) Find the bearing of E from B.

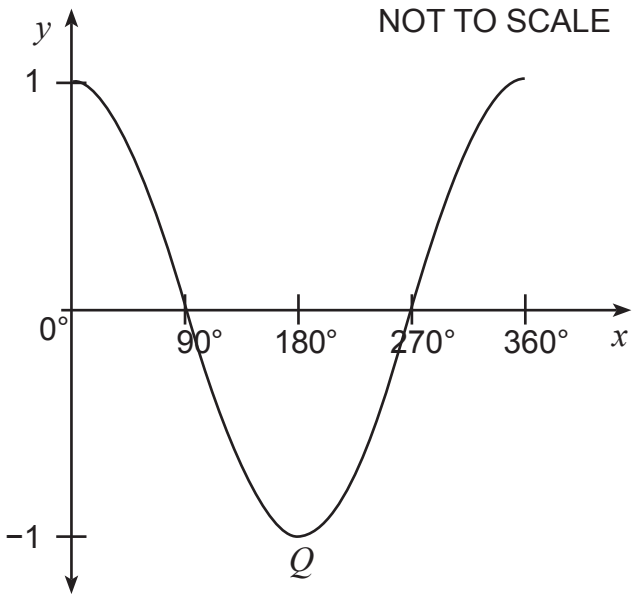
Answer **(c)** .....° [1]

(d) Calculate the area of triangle ABE.

Answer **(d)** ..... cm^2 [2]

For Examiner's Use

13 The diagram shows the graph of $y = \cos x$ for $0° \leq x \leq 360°$.



(a) Write down the coordinates of Q, the point where $x = 180°$.

Answer **(a)** (..... , ...) [1]

(b) Find the value of cos 360°.

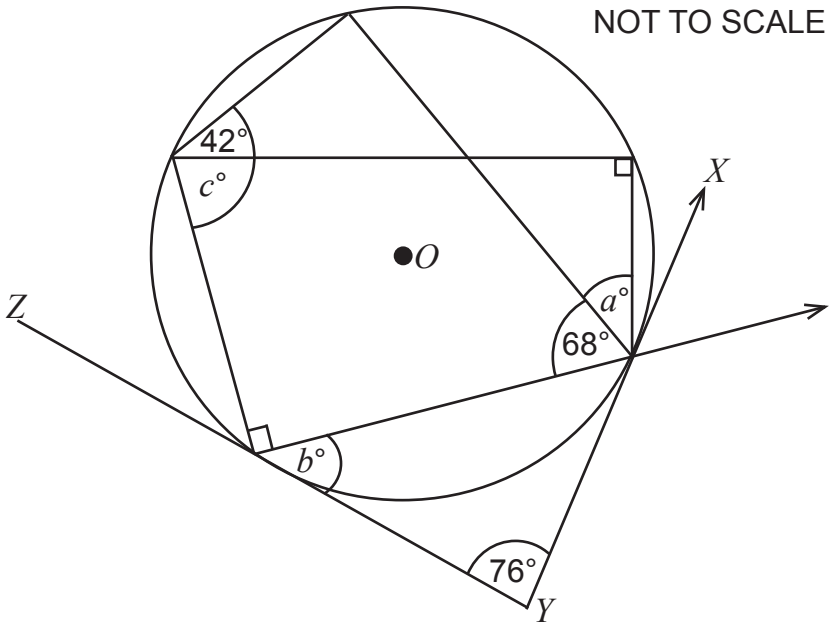
Answer **(b)** ..... [1]

(c) For $0° \leq x \leq 360°$, find the **two** values of x for which $\cos x = -\frac{1}{2}$.

Answer **(c)** .....° or .....° [2]

For Examiner's Use

14 In the figure below, XY and YZ are tangents to the circle, centre O.



(a) Calculate the value of

(i) a,

Answer**(a) (i)** a = ...° [1]

(ii) b.

Answer**(b) (ii)** b = ...° [1]

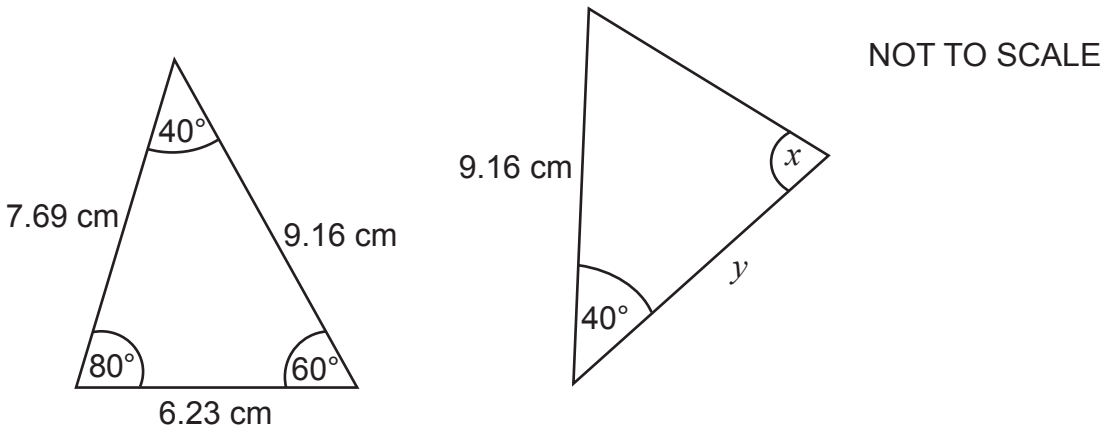
(b) Calculate the value of c and give a reason for the answer.

Answer **(b)** c = ...°

Reason ..... [2]

For Examiner's Use

15 The two triangles shown below are congruent.



Write down the value of

(a) x,

Answer **(a)** .....° [1]

(b) y .

Answer **(b)** ..... cm [1]

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16 The sum of the interior angles of a polygon with n sides is 3 600°.

Find the value of n, the number of sides.

Answer .....sides [2]

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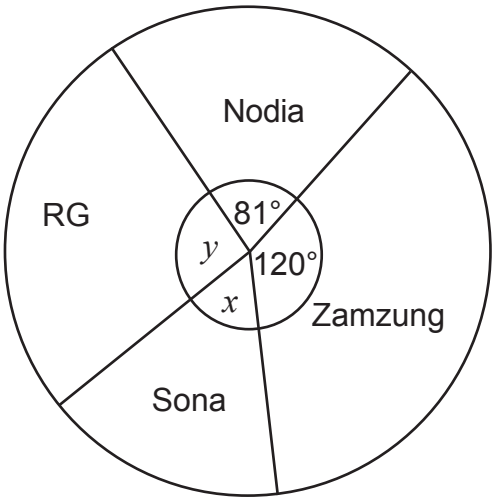
17 The pie chart illustrates the sales of various makes of cellphones.

NOT TO SCALE



(a) What percentage of sales does Nodia represent?

Answer **(a)** ..... [2]

(b) If Sona accounts for 12.5% of total sales, calculate the value of the angles marked x and y.

Answer **(b)** x = ...° , y = ...° [3]

(c) A total amount of N$90 000 was made from all the cellphone sales. How much of this amount was made by selling Zamzung cellphones?

Answer **(c)** ..... [2]

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18 Ebba arranged the following numbers in ascending order.

3, 5, 7, 8, p.

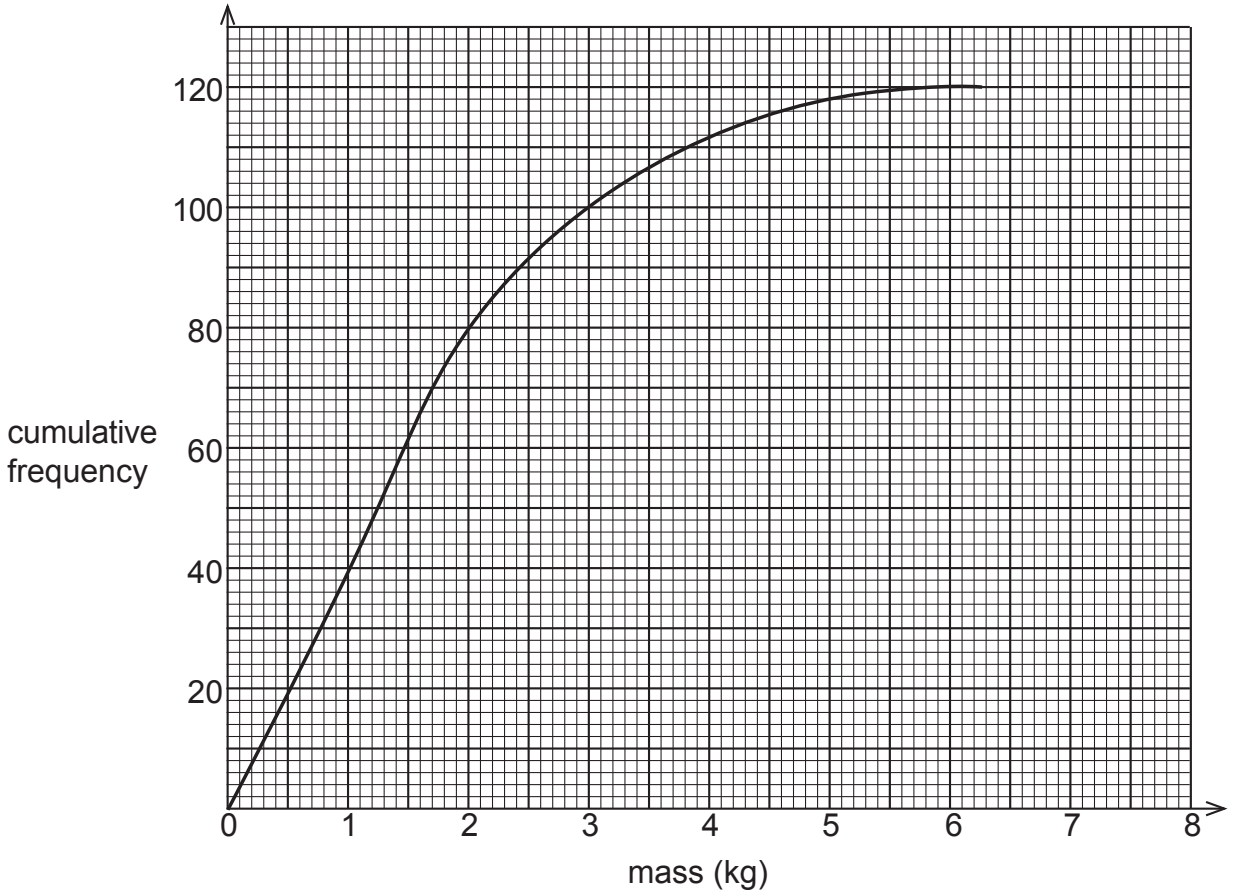
She later found that the mean of the numbers is equal to the median.

Calculate the value of p.

Answer p = ... [2]

For Examiner's Use

19 Hafeni draws a cumulative frequency diagram to show information about the masses of 120 fish caught for the research institution in Henties Bay.



Use the diagram to find

(a) the median mass,

Answer **(a)** .....kg [1]

(b) the inter-quartile range,

Answer **(b)** ..... [2]

(c) the number of fish with a mass more than 2 kg but less than 5 kg.

Answer **(c)** ..... [2]

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