

10 (a) Expand and simplify $(a - b)^2$

[1 mark]

10 (b) Peter thinks that the sum of any rational number and its reciprocal is always greater than 2

Peter checks two examples:

$$\frac{2}{3} + \frac{3}{2} = 2.1\bar{6}$$

$$2 + \frac{1}{2} = 2.5$$

Use a counter example to show that Peter is **incorrect**.

[2 marks]

10 (c) Given that a and b are distinct positive numbers, use proof by contradiction to prove that

$$\frac{a}{b} + \frac{b}{a} > 2$$

[3 marks]