Leave blank

2. (a) Simplify

$$\sqrt{32}+\sqrt{18}$$

giving your answer in the form $a\sqrt{2}$, where a is an integer.

(2)

(b) Simplify

$$\frac{\sqrt{32}+\sqrt{18}}{3+\sqrt{2}}$$

giving your answer in the form $b\sqrt{2}+c$, where b and c are integers.

(4)

Leave blank

4. Solve the simultaneous equations

$$y = x - 2,$$

$$y^2 + x^2 = 10.$$

(7)

Leave blank

1. Find the value of

(a) $25^{\frac{1}{2}}$

(1)

(b) $25^{-\frac{3}{2}}$

(2)

Q1

(Total 3 marks)

Leave blank

4. Solve the simultaneous equations

$$x + y = 2$$
$$4y^2 - x^2 = 11$$

(7)

Leave blank

2. (a) Find the value of $8^{\frac{4}{3}}$.

(2)

(b) Simplify $\dfrac{15x^{\frac{4}{3}}}{3x}$.

(2)

(Total 4 marks)

Q2

Turn over

Leave blank

6. (a) By eliminating y from the equations

$$y = x - 4,$$

$$2x^2 - xy = 8,$$

show that

$$x^2 + 4x - 8 = 0.$$

(2)

(b) Hence, or otherwise, solve the simultaneous equations

$$y = x - 4,$$

$$2x^2 - xy = 8,$$

giving your answers in the form $a \pm b\sqrt{3}$, where a and b are integers.

(5)

Leave blank

6. (a) Expand and simplify $(4 + \sqrt{3})(4 - \sqrt{3})$.

(2)

(b) Express $\dfrac{26}{4+\sqrt{3}}$ in the form $a + b\sqrt{3}$, where a and b are integers.

(2)

Leave blank

2. Factorise completely

$$x^3 - 9x.$$

(3)

(Total 3 marks)

Q2

Leave blank

2. (a) Write down the value of $16^{\frac{1}{4}}$.

(1)

(b) Simplify $(16x^{12})^{\frac{3}{4}}$.

(2)

Q2

(Total 3 marks)

Leave blank

3. Simplify

$$\frac{5-\sqrt{3}}{2+\sqrt{3}},$$

giving your answer in the form $a + b\sqrt{3}$, where a and b are integers.

(4)

Q3

(Total 4 marks)

Leave blank

1. (a) Write down the value of $125^{\frac{1}{3}}$.

(1)

(b) Find the value of $125^{-\frac{2}{3}}$.

(2)

Q1

(Total 3 marks)

Leave blank

3. Expand and simplify $(\sqrt{7} + 2)(\sqrt{7} - 2)$.

(2)

Q3

(Total 2 marks)

Leave blank

1. Simplify $(3+\sqrt{5})(3-\sqrt{5})$.

(2)

(Total 2 marks)

Q1