1 Which of $0.\dot{3}$, π, $\sqrt{25}$ and $\sqrt{5}$ are rational?

2 Find a rational number between $\sqrt{3}$ and $\sqrt{5}$.

3 Find an irrational number between 3 and 4.

4 Write $3\sqrt{5}$ as the square root of a single number.

For Questions 5–15, simplify.

5 $3\sqrt{3} + 2\sqrt{3}$

6 $3\sqrt{3} - 2\sqrt{3}$

7 $3\sqrt{3} \times 2\sqrt{3}$

8 $3\sqrt{3} \div 2\sqrt{3}$

9 $\sqrt{8}$

10 $\sqrt{63}$

11 $\sqrt{3} + \sqrt{12}$

12 $\sqrt{\frac{4}{9}}$

13 $(1 + \sqrt{5})^2$

14 $(2 - \sqrt{2})^2$

15 $(1 + \sqrt{2})(1 - \sqrt{2})$

For Questions 16–19, rationalise the denominator.

16 $\frac{5}{\sqrt{5}}$

17 $\frac{6}{\sqrt{3}}$

18 $\frac{\sqrt{27}}{\sqrt{12}}$

19 $\frac{3 + \sqrt{3}}{\sqrt{3}}$

20 A rectangle has sides of length $3\sqrt{2}$ and $5\sqrt{2}$. Find the exact values of the perimeter, the area and the length of a diagonal.

REVISION EXERCISE 73

1 $0.\dot{3}$ and $\sqrt{25}$

2 2, for example (answers may vary)

3 e.g. $\sqrt{11}$ **4** $\sqrt{45}$ **5** $5\sqrt{3}$ **6** $\sqrt{3}$ **7** 18 **8** 1.5

9 $2\sqrt{2}$ **10** $3\sqrt{7}$ **11** $3\sqrt{3}$ **12** $\frac{2}{3}$ **13** $6+2\sqrt{5}$ **14** $6-4\sqrt{2}$

15 -1 **16** $\sqrt{5}$ **17** $2\sqrt{3}$ **18** $\frac{3}{2}$ **19** $1+\sqrt{3}$ **20** $16\sqrt{2}$, 30, $2\sqrt{17}$