

3.6 Solutions

GCSE Mathematics The Classification of Numbers

Answer 1

- | | | | | | |
|---------|-------------------------|----------|-------------------------|---------|-------------------------|
| (i) | $\mathbb{P}$ irrational | (ii) | $\mathbb{Q}$ rational | (iii) | $\mathbb{P}$ irrational |
| (iv) | $\mathbb{Q}$ rational | (v) | $\mathbb{Q}$ rational | (vi) | $\mathbb{P}$ irrational |
| (vii) | $\mathbb{Q}$ rational | (viii) | $\mathbb{P}$ irrational | (ix) | $\mathbb{Q}$ rational |

[9 marks]

Answer 2

- | | | | | | |
|--------|-------------------------|--------|-----------------------|---------|-----------------------|
| (i) | $\mathbb{P}$ irrational | (ii) | $\mathbb{Q}$ rational | (iii) | $\mathbb{Q}$ rational |
| (iv) | $\mathbb{Q}$ rational | (v) | $\mathbb{Q}$ rational | (vi) | $\mathbb{Q}$ rational |

[6 marks]

Answer 3

- | | | |
|-------|-------------|-------------------------|
| (A) | $\sqrt{53}$ | $\mathbb{P}$ irrational |
| (B) | 10 | $\mathbb{Q}$ rational |
| (C) | $\sqrt{61}$ | $\mathbb{P}$ irrational |
| (D) | 17 | $\mathbb{Q}$ rational |

[8 marks]

Answer 4

- | | | | | | |
|----------|-----------------|----------|-----------------|---------|-----------------|
| (i) | $\frac{15}{14}$ | (ii) | $\frac{21}{5}$ | (iii) | $\frac{29}{21}$ |
| (iv) | $\frac{25}{36}$ | (v) | $\frac{1}{81}$ | (vi) | $\frac{27}{8}$ |
| (vii) | $\frac{10}{11}$ | (viii) | $\frac{169}{1}$ | (ix) | $\frac{25}{4}$ |
| (x) | $\frac{3}{4}$ | (xi) | $\frac{5}{2}$ | (xii) | $\frac{2}{1}$ |
| (xiii) | $\frac{1}{3}$ | (xiv) | $\frac{13}{14}$ | (xv) | $\frac{5}{2}$ |

[15 marks]

Answer 5

- | | | | |
|-------|--------------------------|--------|-------------------------|
| (i) | $\sqrt{162} = 9\sqrt{2}$ | (ii) | $\mathbb{P}$ irrational |
|-------|--------------------------|--------|-------------------------|

[2, 1 marks]

Answer 6

- | | | | | | |
|---------|-------------------------|----------|-----------------------|---------|-------------------------|
| (i) | $\mathbb{Q}$ rational | (ii) | $\mathbb{Q}$ rational | (iii) | $\mathbb{Q}$ rational |
| (iv) | $\mathbb{P}$ irrational | (v) | $\mathbb{Q}$ rational | (vi) | $\mathbb{Q}$ rational |
| (vii) | $\mathbb{Q}$ rational | (viii) | $\mathbb{Q}$ rational | (ix) | $\mathbb{P}$ irrational |

[9 marks]

Answer 7

(i) $\frac{3}{2}$ for example

(ii) $\sqrt{2}$ for example

[2 marks]

Answer 8

(i) $\frac{3}{2}$

(ii) $\frac{6}{1}$

(iii) $\frac{8}{3}$

(iv) $\frac{60}{1}$

(v) $\frac{15}{4}$

(vi) $\frac{3}{5}$

[12 marks]