M1.

(a) A and D

B1

(b) No and a number cannot be both odd and even
or
No and a number cannot be both square and prime
or
No and a number cannot be two-digit, even and prime

oe

Accept eg

No and a number cannot be both A and B

B1

(c) 16 or 36 or 64 and A, D, E
or
25 or 49 or 81 and B, D, E
or
11 or 13 or 17 or 19 or 23 or 29 or
31 or 37 or 41 or 43 or 47 or 53 or
59 or 61 or 67 or 71 or 73 or 79 or
83 or 89 or 97 and B, C, E

B1 Any of the correct possible numbers (listed for B2) but with incorrect properties

or

any even square number and A, D

or

any odd square number and B, D

or

any prime number > 2 and B, C

or

2 and A, C

B2

[4]

M2.

27

B1

[1]

M3.

$x = 81$ and $y = 19$

B1 100 – (a square number) correctly evaluated

or 100 – (a prime number) correctly evaluated

or A list of square numbers up to and including 81 with one error or omission and a list of prime numbers up to and including 19 with one error or omission

or A correctly evaluated trial of a square number plus a prime number.

e.g. 49 + 53 = 102

B2

Additional Guidance

Condone $x = 19$ and $y = 81$

B2

$x = 9^2$ and $y = 19$

B2

$x = 9$ and $y = 19$ with $9^2 = 81$ or $9^2 + 19$ or $81 + 19$ in working

B2

$x = 9$ and $y = 19$ without working

B1

49 and 51 implies 100 – (a square number) correctly evaluated

B1

91 and 9 implies 100 – (a square number) correctly evaluated

B1

[2]

M4.

16 seen or 32 seen or 27 seen

M1

(2×) 16 (+) 27

or 32 (+) 27

M1

59

SC2 43

A1

[3]

M5.

(a) Substitutes and evaluates correctly to show that the answer is even

e.g.

$5^2 + 3^2 = 34$ or $3^2 + 5^2 = 34$

$25 + 9 = 34$ or $9 + 25 = 34$

$7^2 + 3^2 = 58$ or $3^2 + 7^2 = 58$

$49 + 9 = 58$ or $9 + 49 = 58$

$7^2 + 5^2 = 74$ or $5^2 + 7^2 = 74$

$49 + 25 = 74$ or $25 + 49 = 74$

Ignore fw

B1

Additional Guidance

One correct example required with or without incorrect examples

e.g. $2^2 + 3^2 = 13$, $5^2 + 3^2 = 34$

B1

(b) Substitutes and evaluates correctly to show that the answer is odd

e.g.

$3^2 + 2^2 = 13$ or $2^2 + 3^2 = 13$

$9 + 4 = 13$ or $4 + 9 = 13$

$5^2 + 2^2 = 29$ or $2^2 + 5^2 = 29$

$25 + 4 = 29$ or $4 + 25 = 29$

$7^2 + 2^2 = 53$ or $2^2 + 7^2 = 53$

$49 + 4 = 53$ or $4 + 49 = 53$

Ignore fw

B1

Additional Guidance

One correct example required with or without incorrect examples

e.g. $2^2 + 3^2 = 13$, $5^2 + 3^2 = 34$

B1

[2]

M6.(a) 35 and 65

B1

(b) 34 and 76

B1

(c) 76

B1

(d) 21

B1

[4]

M7. Correct order **and** all four correct

values seen in same format

3, 3.15, 3.25, 3.5(0)

or 3, $3\frac{15}{100}$, $3\frac{25}{100}$, $3\frac{50}{100}$

or 3, $3\frac{3}{20}$, $3\frac{1}{4}$, $3\frac{1}{2}$

or 300(%), 315(%), 325(%), 350(%)

or $\sqrt{9}$, 3.15, $\frac{13}{4}, 3\frac{1}{2}$ after values

seen in same format

oe

B2 all four correct values in same format

or

three correct values in same format and correct order for their values

B1 three correct values in same format

SC1 $\sqrt{9}$*, 3.15,* $\frac{13}{4}, 3\frac{1}{2}$ *with no working*

B3

[3]

M8.(a) 24

B1

(b) 7.5(26…)

B1

(c) 6.25 or $6\frac{1}{4}$ or $\frac{25}{4}$

B1

[3]

M9.(a) 35

any clear indication

B1

(b) 12

any clear indication

B1

(c) 48

any clear indication

B1

[3]

M10.(a) 1000

B1

(b) 0.08

oe

B1

Additional Guidance

Accept use of comma eg 0,08

Accept $\frac{2}{25}$ or $\frac{4}{50}$ or $\frac{8}{100}$ or $\frac{80}{1000}$ or $\frac{800}{10000}$ or 0.080 or 0.0800

[2]

M11.27

B1

81

ft their 27 × 3
Answers must be evaluated

B1ft

[2]

M12.(a) 343

B1

(b) Any two cube numbers from 8 or 27 or 64 or 125 or 216

M1

125 and 216

Any order
Accept 5^3 and 6^3
Accept 5 and 6

A1

[3]

M13.(a) 125

B1

(b) 11

Accept – 11 or ± 11

B1

(c) 6^2 or 36 or 7^2 or 49

or $\sqrt{36}$ *(= 6) or* $\sqrt{49}$ *(= 7)*

M1

6 and 7 or 7 and 6

5 and 6 or 7 and 8 without working is M0A0

A1

[4]

M14.(a) 27 or 16

M1

43

A1

(b) (5^3 =) 125 or (10^2 =) 100

M1

125 and 100

A1

5^2

25 without working implies M1A1

A1

[5]

M15.

(a) 1.4

oe

B1

(b) 1.26

B1

[2]

M16.(a) $5 \times 5 \times 5$ or $125 \div 5 \div 5 = 5$ *oe*

or $5^2 = 25$ and 25×5

Condone $\sqrt[3]{125} = 5$

or $5^2 \times 5$

or 5^3

B1

(b) $a = 4$ and $b = 121$

and

$a = 25$ and $b = 100$

(both in either order)

B1

$a = 4$ and $b = 121$

or

$a = 25$ and $b = 100$

(either order)

B1 correct list of square numbers to 100 allow one error or omission

B2

[3]

M17. (a) 21 and 35

B1 for 1 correct (and 1 incorrect)
or 2 correct and 1 incorrect

B2

(b) 6 and 10

B1 for 1 correct (and 1 incorrect)
or 2 correct and 1 incorrect

B2

(c) 16 and 25

B1 for 1 correct (and 1 incorrect)
or 2 correct and 1 incorrect

B2

[6]