2.1 Number and Calculation: 1-hour Pack

ISEB CE 13+ Mathematics · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 After a 20% discount, a bicycle costs £240. Work out the original price of the bicycle.

- ☐ A) £288
- ☐ B) £48
- ☐ C) £1200
- ☐ D) £720
- ☐ E) £300

---

2 Work out 8 × (-6) - 8 × (-2)

- ☐ A) 64
- ☐ B) 32
- ☐ C) 112
- ☐ D) -64
- ☐ E) -32

---

3 Write 12100 as a product of its prime factors, using index notation.

- ☐ A) $2^2 \times 5^2 \times 11$
- ☐ B) $2^2 \times 5^2 \times 11^2$
- ☐ C) $2^2 \times 5^2 \times 11^3$
- ☐ D) $5^2 \times 11^2$
- ☐ E) $2^2 \times 5^3 \times 11^2$

---

4 Round 3661.5809 to 1 decimal place.

- ☐ A) 3661.6
- ☐ B) 4000
- ☐ C) 3661.5
- ☐ D) 3661.7
- ☐ E) 3661.58

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5 Estimate the value of $(224.5 + 0.9) \times 70.5$, by rounding each number to 1 significant figure.

- [ ] A) 15925.95
- [ ] B) 15683.9
- [ ] C) 14063
- [ ] D) 1406.3
- [ ] E) 15890.7

---

6 Find the highest common factor of 30 and 72.

- [ ] A) 360
- [ ] B) 15
- [ ] C) 42
- [ ] D) 6
- [ ] E) 2160

---

7 After a 10% discount, a bicycle costs £360. Work out the original price of the bicycle.

- [ ] A) £396
- [ ] B) £400
- [ ] C) £36
- [ ] D) £720
- [ ] E) £3600

---

8 Work out $2 \times (-7) + 5 \times (-2)$

- [ ] A) 24
- [ ] B) -4
- [ ] C) -24
- [ ] D) 4
- [ ] E) 18

---

9 Write 45 as a product of its prime factors, using index notation.

- [ ] A) $3^2 \times 5$
- [ ] B) 3^2
- [ ] C) $3^2 \times 5^2$
- [ ] D) 6×5
- [ ] E) 3×5

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10 Round 440.2222 to 2 decimal places.

- [ ] A) 440.21
- [ ] B) 440.222
- [ ] C) 440.2
- [ ] D) 440.23
- [ ] E) 440.22

---

11 Estimate the value of $(0.5 + 95.1) \times 277.1$, by rounding each number to 1 significant figure.

- [ ] A) 26740
- [ ] B) 30150
- [ ] C) 301500
- [ ] D) 26490.76
- [ ] E) 3015

---

12 Find the lowest common multiple of 18 and 24.

- [ ] A) 6
- [ ] B) 144
- [ ] C) 432
- [ ] D) 24
- [ ] E) 72

---

13 A recipe for 4 people needs 350g of flour. Work out how much flour is needed to make the recipe for 10 people.

- [ ] A) 875 g
- [ ] B) 700 g
- [ ] C) 2100 g
- [ ] D) 140 g
- [ ] E) 3500 g

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14 Work out $(-8) \times 5 - 7 \times (-3)$

- [ ] A) 61
- [ ] B) 141
- [ ] C) 19
- [ ] D) -19
- [ ] E) -61

---

15 Write 225 as a product of its prime factors, using index notation.

- [ ] A) 3^2
- [ ] B) 6×10
- [ ] C) $3^2 \times 5^2$
- [ ] D) $3^2 \times 5^3$
- [ ] E) 5^2

---

16 Round 1790.62498 to 2 decimal places.

- [ ] A) 1790.6
- [ ] B) 1790.63
- [ ] C) 1790.61
- [ ] D) 1790.62
- [ ] E) 1800

---

17 Estimate the value of 916.8×131, by rounding each number to 1 significant figure.

- [ ] A) 120127
- [ ] B) 900000
- [ ] C) 9000
- [ ] D) 100000
- [ ] E) 90000

---

18 Find the highest common factor of 99 and 63.

- [ ] A) 9
- [ ] B) 31
- [ ] C) 3
- [ ] D) 27
- [ ] E) 36

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19 After a 20% discount, a bicycle costs £280. Work out the original price of the bicycle.

- [ ] A) £350
- [ ] B) £840
- [ ] C) £1400
- [ ] D) £336
- [ ] E) £56

---

20 Work out $12 \div 4 + 1 \times (-9)$

- [ ] A) 6
- [ ] B) 12
- [ ] C) -12
- [ ] D) -36
- [ ] E) -6

---

21 Write 12 as a product of its prime factors, using index notation.

- [ ] A) 2^2
- [ ] B) $2^2 \times 3$
- [ ] C) 2×3
- [ ] D) $2^3 \times 3$
- [ ] E) $2^2 \times 3^2$

---

22 Round 6698.66119 to 1 decimal place.

- [ ] A) 6698.6
- [ ] B) 6698.8
- [ ] C) 6698.7
- [ ] D) 7000
- [ ] E) 6698.66

---

23 Work out $11 \times 2 - 10 \times (13 - 10)^2$

- [ ] A) 108
- [ ] B) -5268
- [ ] C) 112
- [ ] D) -68
- [ ] E) -208

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24 Estimate the value of 6.54 × 941.67, by rounding each number to 1 significant figure.

- [ ] A) 6110
- [ ] B) 6300
- [ ] C) 630
- [ ] D) 6000
- [ ] E) 6160.68

---

25 Find the lowest common multiple of 22 and 4.

- [ ] A) 2
- [ ] B) 22
- [ ] C) 26
- [ ] D) 88
- [ ] E) 44

---

26 Work out (-6) × 1 - 9 × 6

- [ ] A) -60
- [ ] B) -48
- [ ] C) 48
- [ ] D) -90
- [ ] E) 60

---

27 Write 20346417 as a product of its prime factors, using index notation.

- [ ] A) $3^3 \times 7^3 \times 13^4$
- [ ] B) $3^3 \times 7^4 \times 13^3$
- [ ] C) $3^3 \times 7^3$
- [ ] D) $3^3 \times 7^3 \times 13^3$
- [ ] E) $3^4 \times 7^3 \times 13^3$

---

28 Round 2826.53394 to 1 decimal place.

- [ ] A) 3000
- [ ] B) 2826.4
- [ ] C) 2826.5
- [ ] D) 2826.6
- [ ] E) 2826.53

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29 Work out (12 + 11) × 11 - 2

- [ ] A) 255
- [ ] B) 207
- [ ] C) 251
- [ ] D) 131
- [ ] E) 9

---

30 Estimate the value of (881.43 + 606.76) × 0.13, by rounding each number to 1 significant figure.

- [ ] A) 200
- [ ] B) 150
- [ ] C) 193.7
- [ ] D) 193.4647
- [ ] E) 1500

---

31 Work out 17 + 1 - (-8)

- [ ] A) 26
- [ ] B) 24
- [ ] C) -8
- [ ] D) -26
- [ ] E) 10

---

32 Write 18 as a product of its prime factors, using index notation.

- [ ] A) 3^2
- [ ] B) $2^2 \times 3^2$
- [ ] C) 2×3
- [ ] D) 2×3^3
- [ ] E) 2×3^2

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33 Round 471.97977 to 1 decimal place.

- [ ] A) 471.9
- [ ] B) 472.1
- [ ] C) 472.0
- [ ] D) 471.98
- [ ] E) 500

---

34 Work out $(10 + 4) \times 11 - 8$

- [ ] A) 42
- [ ] B) 162
- [ ] C) 46
- [ ] D) 58
- [ ] E) 146

---

35 Estimate the value of 38.4×79.8, by rounding each number to 1 significant figure.

- [ ] A) 3200
- [ ] B) 3040
- [ ] C) 3000
- [ ] D) 320
- [ ] E) 3064.32

---

36 Find the highest common factor of 21 and 36.

- [ ] A) 1
- [ ] B) 756
- [ ] C) 9
- [ ] D) 3
- [ ] E) 252

---

37 Write 399300 as a product of its prime factors, using index notation.

- [ ] A) $2 \times 3 \times 5^2 \times 11^3$
- [ ] B) $2^2 \times 3 \times 5^2 \times 11^3$
- [ ] C) $2^2 \times 3 \times 5^2 \times 11^4$
- [ ] D) $2^3 \times 3 \times 5^2 \times 11^3$
- [ ] E) $2^2 \times 3 \times 5^2 \times 11^2$

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38 Round 5311.82894 to 1 decimal place.

- [ ] A) 5000
- [ ] B) 5311.83
- [ ] C) 5311.8
- [ ] D) 5311.9
- [ ] E) 5311.7

---

39 Work out $4 \times 7 - 8 \times (11 - 9)^2$

- [ ] A) 80
- [ ] B) -141
- [ ] C) 60
- [ ] D) -4
- [ ] E) -3172

---

40 Estimate the value of 45.1×0.35, by rounding each number to 1 significant figure.

- [ ] A) 15.75
- [ ] B) 15.785
- [ ] C) 20
- [ ] D) 45
- [ ] E) 200

---

41 Find the lowest common multiple of 84 and 144.

- [ ] A) 1008
- [ ] B) 144
- [ ] C) 12096
- [ ] D) 12
- [ ] E) 2016

---

42 Work out 3 + 2 - (-15)

- [ ] A) 14
- [ ] B) -10
- [ ] C) -20
- [ ] D) 16
- [ ] E) 20

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43 Round 7742.55273 to 2 decimal places.

- [ ] A) 7742.553
- [ ] B) 7742.55
- [ ] C) 7700
- [ ] D) 7742.6
- [ ] E) 7742.56

---

44 Work out $(10 + 5) \times 6 - 4$

- [ ] A) 26
- [ ] B) 30
- [ ] C) 36
- [ ] D) 86
- [ ] E) 94

---

45 Estimate the value of 57.7×0.91, by rounding each number to 1 significant figure.

- [ ] A) 5.4
- [ ] B) 50
- [ ] C) 58
- [ ] D) 52.507
- [ ] E) 54

---

46 Find the lowest common multiple of 66 and 18.

- [ ] A) 198
- [ ] B) 84
- [ ] C) 396
- [ ] D) 66
- [ ] E) 6

---

47 Work out $(-8) \times (-9) - 3 \times 5$

- [ ] A) 87
- [ ] B) -87
- [ ] C) -57
- [ ] D) 57
- [ ] E) 345

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48 Write 13068 as a product of its prime factors, using index notation.

- [ ] A) $2^3 \times 3^3 \times 11^2$
- [ ] B) $2 \times 3^3 \times 11^2$
- [ ] C) $2^2 \times 11^2$
- [ ] D) $2^2 \times 3^3 \times 11^2$
- [ ] E) $2^2 \times 3^3$

---

49 Round 8480.80329 to 2 decimal places.

- [ ] A) 8480.79
- [ ] B) 8480.81
- [ ] C) 8480.80
- [ ] D) 8480.803
- [ ] E) 8500

---

50 Estimate the value of (834.9 + 52.2) × 342.46, by rounding each number to 1 significant figure.

- [ ] A) 303422.4
- [ ] B) 255000
- [ ] C) 303796.266
- [ ] D) 2550000
- [ ] E) 303354

---

51 Find the highest common factor of 6 and 15.

- [ ] A) 9
- [ ] B) 1
- [ ] C) 30
- [ ] D) 90
- [ ] E) 3

---

52 Work out 8 + 11 - (-12)

- [ ] A) -31
- [ ] B) 7
- [ ] C) 9
- [ ] D) 15
- [ ] E) 31

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53 Write 8450 as a product of its prime factors, using index notation.

- [ ] A) $2 \times 5^2 \times 13^2$
- [ ] B) $2 \times 5^2 \times 13^3$
- [ ] C) $2 \times 10 \times 26$
- [ ] D) 2×5^2
- [ ] E) $5^2 \times 13^2$

---

54 Round 49577 to the nearest 10.

- [ ] A) 49590
- [ ] B) 49570
- [ ] C) 49580
- [ ] D) 49577
- [ ] E) 49600

---

55 Work out $8 + (5 + 11)^2 \div 4$

- [ ] A) -56
- [ ] B) 72
- [ ] C) 144
- [ ] D) 17
- [ ] E) 16

---

56 Find the highest common factor of 10 and 22.

- [ ] A) 1
- [ ] B) 5
- [ ] C) 220
- [ ] D) 110
- [ ] E) 2

---

57 Work out 19 - (-14) + 6

- [ ] A) 1
- [ ] B) -39
- [ ] C) 39
- [ ] D) 27
- [ ] E) 11

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58 Write 390 as a product of its prime factors, using index notation.

- ☐ A) $2 \times 3 \times 5 \times 13$
- ☐ B) $2 \times 3 \times 13$
- ☐ C) $3 \times 5 \times 13$
- ☐ D) $2 \times 3 \times 5 \times 13^2$
- ☐ E) $2 \times 5 \times 13$

---

59 A charity's total income is split between Bake Sale, Sponsored Walk and Raffle in the ratio 3 : 5 : 2. The Raffle raised £180 less than the Sponsored Walk.

(a) Find the value of one part of the ratio. **(2)**

.....

(b) Find the total amount raised by all three activities. **(2)**

.....

(c) What percentage of the total was raised by the Bake Sale? **(1)**

.....

---

60 Round 111.92851 to 2 decimal places.

- ☐ A) 110
- ☐ B) 111.9
- ☐ C) 111.94
- ☐ D) 111.93
- ☐ E) 111.929

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Mark scheme · 2.1 Number and Calculation: 1-hour Pack

Question 1

correct option E (£300) cao **B1**

Answer: E) £300

Question 2

E cao (-32); 8 × (-6) - 8 × (-2) = -32 **B1**

Answer: E) -32

Question 3

B cao ($2^2 \times 5^2 \times 11^2$); 12100 = $2^2 \times 5^2 \times 11^2$ **B1**

Answer: B) $2^2 \times 5^2 \times 11^2$

Question 4

A cao (3661.6); 3661.5809 rounds to 3661.6 **B1**

Answer: A) 3661.6

Question 5

C cao (14063); round each number to 1 significant figure, then calculate **B1**

Answer: C) 14063

Question 6

D cao (6); HCF 6, LCM 360 **B1**

Answer: D) 6

Question 7

correct option B (£400) cao **B1**

Answer: B) £400

Question 8

C cao (-24); 2 × (-7) + 5 × (-2) = -24 **B1**

Answer: C) -24

Question 9

A cao ($3^2 \times 5$); 45 = $3^2 \times 5$ **B1**

Answer: A) $3^2 \times 5$

Question 10

E cao (440.22); 440.2222 rounds to 440.22 **B1**

Answer: E) 440.22

Question 11

B cao (30150); round each number to 1 significant figure, then calculate **B1**

Answer: B) 30150

Question 12

E cao (72); HCF 6, LCM 72 **B1**

Answer: E) 72

Question 13

correct option A (875 g) cao **B1**

Answer: A) 875 g

Question 14

D cao (-19); (-8) × 5 - 7 × (-3) = -19 **B1**

Answer: D) -19

Question 15

C cao ($3^2 \times 5^2$); 225 = $3^2 \times 5^2$ **B1**

Answer: C) $3^2 \times 5^2$

Question 16

D cao (1790.62); 1790.62498 rounds to 1790.62 **B1**

Answer: D) 1790.62

Question 17

E cao (90000); round each number to 1 significant figure, then calculate **B1**

Answer: E) 90000

Question 18

A cao (9); HCF 9, LCM 693 **B1**

Answer: A) 9

Question 19

correct option A (£350) cao **B1**

Answer: A) £350

Question 20

E cao (-6); 12 ÷ 4 + 1 × (-9) = -6 **B1**

Answer: E) -6

Question 21

B cao ($2^2 \times 3$); 12 = $2^2 \times 3$ **B1**

Answer: B) $2^2 \times 3$

Question 22

C cao (6698.7); 6698.66119 rounds to 6698.7 **B1**

Answer: C) 6698.7

Question 23

D cao (-68); 11 × 2 - 10 × $(13 - 10)^2$ = -68 **B1**

Answer: D) -68

Question 24

B cao (6300); round each number to 1 significant figure, then calculate **B1**

Answer: B) 6300

Question 25

E cao (44); HCF 2, LCM 44 **B1**

Answer: E) 44

Question 26

A cao (-60); (-6) × 1 - 9 × 6 = -60 **B1**

Answer: A) -60

Question 27

D cao ($3^3 \times 7^3 \times 13^3$); 20346417 = $3^3 \times 7^3 \times 13^3$ **B1**

Answer: D) $3^3 \times 7^3 \times 13^3$

Question 28

C cao (2826.5); 2826.53394 rounds to 2826.5 **B1**

Answer: C) 2826.5

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Question 29

C cao (251); (12 + 11) × 11 - 2 = 251 **B1**

Answer: C) 251

Question 30

B cao (150); round each number to 1 significant figure, then calculate **B1**

Answer: B) 150

Question 31

A cao (26); 17 + 1 - (-8) = 26 **B1**

Answer: A) 26

Question 32

E cao (2×3^2); $18 = 2 \times 3^2$ **B1**

Answer: E) 2×3^2

Question 33

C cao (472.0); 471.97977 rounds to 472.0 **B1**

Answer: C) 472.0

Question 34

E cao (146); (10 + 4) × 11 - 8 = 146 **B1**

Answer: E) 146

Question 35

A cao (3200); round each number to 1 significant figure, then calculate **B1**

Answer: A) 3200

Question 36

D cao (3); HCF 3, LCM 252 **B1**

Answer: D) 3

Question 37

B cao ($2^2 \times 3 \times 5^2 \times 11^3$); $399300 = 2^2 \times 3 \times 5^2 \times 11^3$ **B1**

Answer: B) $2^2 \times 3 \times 5^2 \times 11^3$

Question 38

C cao (5311.8); 5311.82894 rounds to 5311.8 **B1**

Answer: C) 5311.8

Question 39

D cao (-4); $4 \times 7 - 8 \times (11 - 9)^2 = -4$ **B1**

Answer: D) -4

Question 40

C cao (20); round each number to 1 significant figure, then calculate **B1**

Answer: C) 20

Question 41

A cao (1008); HCF 12, LCM 1008 **B1**

Answer: A) 1008

Question 42

E cao (20); 3 + 2 - (-15) = 20 **B1**

Answer: E) 20

Question 43

B cao (7742.55); 7742.55273 rounds to 7742.55 **B1**

Answer: B) 7742.55

Question 44

D cao (86); (10 + 5) × 6 - 4 = 86 **B1**

Answer: D) 86

Question 45

E cao (54); round each number to 1 significant figure, then calculate **B1**

Answer: E) 54

Question 46

A cao (198); HCF 6, LCM 198 **B1**

Answer: A) 198

Question 47

D cao (57); (-8) × (-9) - 3 × 5 = 57 **B1**

Answer: D) 57

Question 48

D cao ($2^2 \times 3^3 \times 11^2$); $13068 = 2^2 \times 3^3 \times 11^2$ **B1**

Answer: D) $2^2 \times 3^3 \times 11^2$

Question 49

C cao (8480.80); 8480.80329 rounds to 8480.80 **B1**

Answer: C) 8480.80

Question 50

B cao (255000); round each number to 1 significant figure, then calculate **B1**

Answer: B) 255000

Question 51

E cao (3); HCF 3, LCM 30 **B1**

Answer: E) 3

Question 52

E cao (31); 8 + 11 - (-12) = 31 **B1**

Answer: E) 31

Question 53

A cao ($2 \times 5^2 \times 13^2$); $8450 = 2 \times 5^2 \times 13^2$ **B1**

Answer: A) $2 \times 5^2 \times 13^2$

Question 54

C cao (49580); 49577 rounds to 49580 **B1**

Answer: C) 49580

Question 55

B cao (72); $8 + (5 + 11)^2 \div 4 = 72$ **B1**

Answer: B) 72

Question 56

E cao (2); HCF 2, LCM 110 **B1**

Answer: E) 2

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Question 57

C cao (39); 19 - (-14) + 6 = 39 **B1**

Answer: C) 39

Question 58

A cao ($2 \times 3 \times 5 \times 13$); $390 = 2 \times 3 \times 5 \times 13$ **B1**

Answer: A) $2 \times 3 \times 5 \times 13$

Question 59

(a) recognises (5 - 2) parts = 3 parts = £180 **M1**

(a) £60 cao **A1**

(a) Answer: £60

(b) total parts = 3 + 5 + 2 = 10, ft from part (a) **M1**

(b) £600 cao **A1**

(b) Answer: £600

(c) 30% cao, ft from parts (a) and (b) **B1**

(c) Answer: 30%

Question 60

D cao (111.93); 111.92851 rounds to 111.93 **B1**

Answer: D) 111.93

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