

ISEE Middle Level Mathematics Practice Test

47 questions | 40 minutes | Four choices per question

Directions. Work through this original mathematics section in the allotted time. Choose one answer for each question. Use scratch paper. Check the answer key only after finishing. This is independent practice, not an official ISEE test or a score predictor. The full ISEE also tests reading; Lower, Middle, and Upper have additional verbal, quantitative, and essay sections.

Name: _____

Date: _____

1. Five more than twice a number is 23. What is the number?

- A. 18 B. 36
C. 9 D. 14

2. The table shows points scored in four games. What is the mean score?

Game	1	2	3	4
Points	10	14	9	15

- A. 12 B. 48
C. 10 D. 13

3. Use the taxi-rate sign. Which equation gives the cost C for m miles?

Taxi rate
Base fee: \$3
Each mile: \$2
Distance: m miles

- A. $C = 5m$ B. $C = 3m + 2$
C. $C = 2(m + 3)$ D. $C = 2m + 3$

4. The sale tag shows that a sweater costs \$48 after a 20% discount. What was its original price?

Sale tag
Final price: \$48
Discount: 20%
Find original price

- A. \$38.40 B. \$60
C. \$57.60 D. \$68

5. If $4(x - 2) = 28$, what is x ?

- A. 5 B. 7
C. 9 D. 30

6. Use the seating chart details shown. How many seats remain for guests?

Theater seating
Rows: 18
Seats per row: 24
Reserved for staff: 16

- A. 448 B. 432
C. 400 D. 416

7. Use the marble counts shown. What is the probability of drawing a marble that is not blue?

Marble color | Count
Red | 4
Blue | 5
Green | 3

- A. $7/12$ B. $5/12$
C. $2/3$ D. $7/5$

8. For the rule $y = 3x - 4$, what is y when $x = -2$?

- A. -10 B. 10
C. -2 D. 2

9. A runner completes $2/5$ of a 15-mile route. How many miles remain?

- A. 6 B. 9
C. 13 D. 10

10. A sequence begins 7, 11, 15, 19, What is its 12th term?

- A. 47 B. 51
C. 55 D. 48

11. What is $0.36 \div 0.6$?

- A. 0.06 B. 0.216
C. 0.6 D. 6

12. What is the median of 4, 7, 11, 14, 20, and 22?

- A. 13 B. 14
C. 11 D. 12.5

13. What is the least common multiple of 6 and 8?

- A. 48
B. 24
C. 12
D. 14

14. A fair six-sided die is rolled. What is the probability of rolling an even number greater than 2?

- A. $\frac{1}{3}$
B. $\frac{2}{3}$
C. $\frac{1}{2}$
D. $\frac{1}{6}$

15. A number is divisible by both 4 and 9. Which number could it be?

- A. 180
B. 126
C. 162
D. 140

16. Which value is greatest?

- A. 0.60
B. 0.62
C. 61%
D. $\frac{5}{8}$

17. Which expression is equivalent to $3(2x - 5) + 4x$?

- A. $10x - 15$
B. $10x - 5$
C. $10x + 15$
D. $6x - 15$

18. The packing record shows 252 pencils split equally into 12 boxes. How many pencils are in 5 boxes?

Packing record
252 pencils
12 equal boxes
Find pencils in 5 boxes

- A. 21
B. 60
C. 126
D. 105

19. The mean of five numbers is 12. Four are 8, 10, 14, and 16. What is the fifth?

- A. 60
B. 14
C. 12
D. 10

20. Use the trip log shown. At the same constant speed, how far will the car travel in 5 hours?

Trip log
Distance: 135 miles
Time: 3 hours
New time: 5 hours

- A. 225 miles
B. 45 miles
C. 675 miles
D. 180 miles

21. The triangle diagram shows angles of 48° and 67° . What is the third angle?

Triangle angles
48 degrees
67 degrees
? degrees

- A. 65°
B. 55°
C. 115°
D. 75°

22. If $\frac{x}{3} + 4 = 10$, what is $2x$?

- A. 24
B. 42
C. 18
D. 36

23. The tank diagram shows it is $\frac{3}{4}$ full. After $\frac{1}{3}$ of the tank's capacity is used, what fraction remains full?

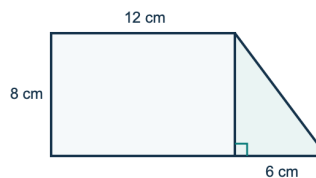
Tank capacity model
Start: $\frac{3}{4}$ full
Used: $\frac{1}{3}$ of full tank
Find amount remaining

- A. $\frac{2}{3}$
B. $\frac{1}{2}$
C. $\frac{5}{12}$
D. $\frac{1}{4}$

24. A water tank holds 2.4 liters. How many milliliters does it hold?

- A. 240 mL
B. 2.4 mL
C. 24,000 mL
D. 2,400 mL

25. A 12 cm by 8 cm rectangle and a right triangle with legs 6 cm and 8 cm are joined without overlapping. What is their combined area?



- A. 144 cm^2
B. 96 cm^2
C. 72 cm^2
D. 120 cm^2

26. Which is the prime factorization of 84?

- A. $2^2 \times 21$
B. $2^2 \times 3 \times 7$
C. $2 \times 3 \times 14$
D. $2^3 \times 3 \times 7$

27. The table follows one linear rule. What is y when $x = 5$?

Variable	First	Second	Third
x	1	2	3
y	5	8	11

- A. 19
C. 15
- B. 13
D. 17

28. A price of \$80 rises by 15% and then falls by \$8. What is the final price?

- A. \$92
C. \$84
- B. \$88
D. \$72

29. The table gives books read by four students. What is the range?

Student	A	B	C	D
Books	4	7	11	8

- A. 6
C. 4
- B. 7
D. 11

30. A rectangular field is 18 m by 12 m. A path goes once around its edge. How long is the path?

- A. 30 m
C. 60 m
- B. 72 m
D. 216 m

31. A school orders 30 packs of 18 markers. It gives 45 markers to each of 8 classrooms. How many markers remain?

- A. 540
C. 360
- B. 180
D. 90

32. What is $1\frac{1}{2} \div \frac{3}{4}$?

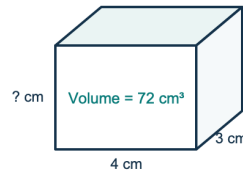
- A. $\frac{3}{2}$
C. $\frac{1}{2}$
- B. 2
D. $\frac{9}{8}$

33. In the rectangle shown, the length is 3 cm more than the width and the perimeter is 30 cm. What is the width?

Rectangle model
Width: w
Length: $w + 3$
Perimeter: 30 cm

- A. 6 cm
C. 7.5 cm
- B. 9 cm
D. 12 cm

34. A rectangular prism has volume 72 cm^3 . Its rectangular base is 3 cm by 4 cm. What is its height?



- A. 4 cm
C. 3 cm
- B. 12 cm
D. 6 cm

35. The sample space for tossing two fair coins is shown. What is the probability of at least one head?

Two-coin outcomes
HH HT TH TT
At least one head?

- A. 1
C. $\frac{3}{4}$
- B. $\frac{1}{4}$
D. $\frac{1}{2}$

36. A train leaves at 9:45 a.m. and arrives at 12:20 p.m. How long is the trip?

- A. 2 hours 35 minutes
B. 2 hours 25 minutes
C. 3 hours 35 minutes
D. 1 hour 35 minutes

37. The scores 6, 8, 8, 9, and 14 are listed in order. Which measure changes most if 14 is replaced by 24?

- A. mean
C. none changes
- B. median
D. mode

38. Which estimate is closest to 398×7 ?

- A. 4000
C. 2100
- B. 2800
D. 3200

39. The diagram compares a square with side s and a larger square with side $2s$. By what factor does the area change?

Small square side: s
Large square side: $2s$
Compare areas

- A. 16
C. 8
- B. 2
D. 4

40. Which ordered pair satisfies $y = 2x + 1$?

- A. (2, 7) B. (3, 7)
C. (4, 7) D. (3, 5)

41. A map scale is 1 inch to 12 miles. If two towns are 2.5 inches apart, how far apart are they?

- A. 14.5 miles B. 24 miles
C. 30 miles D. 4.8 miles

42. A number leaves remainder 3 when divided by 5. Which number could it be?

- A. 41 B. 45
C. 40 D. 43

43. If $3x + 2 < 17$ and x is a positive whole number, what is the greatest possible x ?

- A. 3 B. 6
C. 4 D. 5

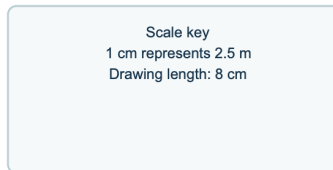
44. A circle has circumference 10π cm. What is its radius?

- A. 10 cm B. 5 cm
C. 25 cm D. 20 cm

45. A class has 24 students. The ratio of boys to girls is 3:5. How many girls are in the class?

- A. 12 B. 9
C. 15 D. 18

46. Use the scale drawing key. What actual length does 8 cm represent?



- A. 10.5 m B. 20 m
C. 200 m D. 32 m

47. A spinner has equal sectors numbered 1 through 8. What is the probability of a number divisible by 3?

- A. $\frac{3}{8}$ B. $\frac{1}{8}$
C. $\frac{1}{4}$ D. $\frac{1}{3}$

Answer key and explanations

1. **C — 9** Solve $2x + 5 = 23$: $2x = 18$, so $x = 9$.
2. **A — 12** The total is $10 + 14 + 9 + 15 = 48$; the mean is $48 \div 4 = 12$.
3. **D — C = $2m + 3$** The per-mile charge is $2m$; add the one-time \$3 fee.
4. **B — \$60** \$48 is 80% of the original price; $48 \div 0.8 = \$60$.
5. **C — 9** Divide by 4 to get $x - 2 = 7$, then $x = 9$.
6. **D — 416** $18 \times 24 = 432$ total seats; $432 - 16 = 416$.
7. **A — 7/12** Seven of the 12 marbles are not blue, giving 7/12.
8. **A — -10** Substitute -2: $y = 3(-2) - 4 = -10$.
9. **B — 9** Completed distance is $2/5 \times 15 = 6$ miles; $15 - 6 = 9$.
10. **B — 51** The difference is 4; term 12 is $7 + 11 \times 4 = 51$.
11. **C — 0.6** Multiply numerator and denominator by 10: $3.6 \div 6 = 0.6$.
12. **D — 12.5** The middle two values are 11 and 14; their mean is 12.5.
13. **B — 24** Multiples of 6 include 6, 12, 18, 24; multiples of 8 include 8, 16, 24. The first common multiple is 24.
14. **A — 1/3** Only 4 and 6 work, so the probability is $2/6 = 1/3$.
15. **A — 180** 180 is divisible by 4 (last two digits 80) and by 9 (digit sum 9).
16. **D — 5/8** $5/8 = 0.625$, greater than 0.62, 0.61, and 0.60.
17. **A — $10x - 15$** Distribute to get $6x - 15 + 4x = 10x - 15$.
18. **D — 105** Each box holds $252 \div 12 = 21$ pencils, so 5 boxes hold 105.
19. **C — 12** All five sum to $5 \times 12 = 60$; the four known values sum to 48; missing value is 12.
20. **A — 225 miles** The speed is $135 \div 3 = 45$ miles per hour; in 5 hours it travels 225 miles.
21. **A — 65°** The angles total 180° ; $180 - 48 - 67 = 65^\circ$.
22. **D — 36** $x/3 = 6$, so $x = 18$ and $2x = 36$.
23. **C — 5/12** Subtract $1/3$ from $3/4$: $9/12 - 4/12 = 5/12$.
24. **D — 2,400 mL** Each liter is 1,000 mL, so 2.4 liters is 2,400 mL.
25. **D — 120 cm²** The rectangle's area is $12 \times 8 = 96$ cm². The triangle's area is $6 \times 8 \div 2 = 24$ cm². Total = 120 cm².
26. **B — $2^2 \times 3 \times 7$** $84 = 4 \times 21 = 2^2 \times 3 \times 7$; every factor listed is prime.
27. **D — 17** When x rises by 1, y rises by 3. From $x = 3$ and $y = 11$, two more steps give $y = 17$.
28. **C — \$84** 15% of \$80 is \$12; $80 + 12 - 8 = \$84$.
29. **B — 7** The largest count is 11 and the smallest is 4, so range = 7.
30. **C — 60 m** The perimeter is $2(18 + 12) = 60$ m.
31. **B — 180** $30 \times 18 = 540$ markers; $8 \times 45 = 360$ given out; 180 remain.
32. **B — 2** Convert $1 \frac{1}{2}$ to $3/2$, then multiply by $4/3$ to get 2.
33. **A — 6 cm** Let width be w . Then $2w + 2(w + 3) = 30$, so $4w = 24$ and $w = 6$.
34. **D — 6 cm** The base area is $3 \times 4 = 12$ cm²; height is $72 \div 12 = 6$ cm.
35. **C — 3/4** The equally likely outcomes are HH, HT, TH, TT; three have at least one head.
36. **A — 2 hours 35 minutes** 9:45 to 11:45 is 2 hours; to 12:20 is 35 more minutes.
37. **A — mean** The mean rises by $10/5 = 2$. The median and mode stay 8.
38. **B — 2800** Round 398 to 400; $400 \times 7 = 2,800$.
39. **D — 4** Area is side $\times$ side; doubling both dimensions multiplies area by $2 \times 2 = 4$.
40. **B — (3, 7)** When $x = 3$, $2x + 1 = 7$.
41. **C — 30 miles** Multiply 2.5 inches by 12 miles per inch to get 30 miles.
42. **D — 43** $43 = 5 \times 8 + 3$, so the remainder is 3.
43. **C — 4** $3x < 15$, so $x < 5$; the greatest positive whole number allowed is 4.
44. **B — 5 cm** Since circumference is $2\pi r$, solve $2\pi r = 10\pi$ to get $r = 5$ cm.
45. **C — 15** The ratio has 8 parts; each part is $24 \div 8 = 3$. Girls make 5 parts, or 15.
46. **B — 20 m** $8 \times 2.5 = 20$ meters.
47. **C — 1/4** Only 3 and 6 qualify, so $2/8 = 1/4$.