BRITISH COLUMBIA FOUNDATIONS OF MATHEMATICS 12 (MFOM-12) · FINAL EXAM · 50 QUESTIONS

Final Exam — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **For the circle $(x - 2)^2 + (y + 5)^2 = 36$, the centre and radius are**

- A (2, 5), 6
- B (2, -5), 36
- C (-2, -5), 6
- D (2, -5), 6

Understand It with Pulse | Flag a mistake

2 **The graph shows $y = \log x$. The value of y at the point P is**

- A 1
- B -1
- C 2
- D 0

Understand It with Pulse | Flag a mistake

3 **The number of ordered choices of 3 students from 5, with no repeats, is ____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **An amount of 1000 dollars grows by 5 percent per year, compounded. After 2 years, the amount, in dollars, is ____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **The foci of the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$ are**

A (0, ± 5)

B (± 5, 0)

C (0, ± 4)

D (± 4, 0)

Understand It with Pulse | Flag a mistake

6 **The value of $\log_2 32$ is ____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **The probability that two fair dice sum to 7 is**

A $\frac{1}{12}$

B $\frac{1}{6}$

C $\frac{1}{4}$

D $\frac{1}{3}$

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8 **A mortgage payment is 1200 dollars per month for 25 years. The total paid, in dollars, is ____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

9 The vertices of the ellipse $\frac{x^2}{16} + \frac{y^2}{4} = 1$ are

- **A** (± 4, 0)
- **B** (0, ± 4)
- **C** (± 2, 0)
- **D** (0, ± 2)

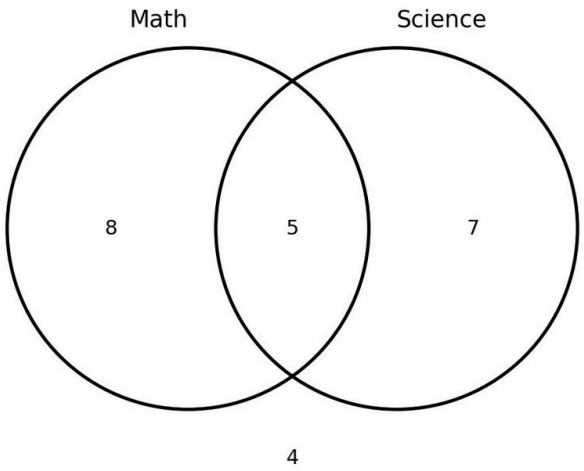
Understand It with Pulse | Flag a mistake

10 A correlation coefficient of -0.15 shows a

- **A** strong negative correlation
- **B** weak positive correlation
- **C** strong positive correlation
- **D** weak negative correlation

Understand It with Pulse | Flag a mistake

11 **The diagram shows students who take Math, Science, or neither. The number who take Math only is**



A 5

B 7

C 8

D 13

Understand It with Pulse | Flag a mistake

12 **The graph shows a loan balance falling by equal amounts each year. The balance, in dollars, after 2 years is**

- A 5000
- B 2500
- C 7500
- D 10000

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13 **The vertex of the parabola $y = 2(x - 3)^2 - 1$ is**

- A (3, -1)
- B (-3, -1)
- C (3, 1)
- D (-3, 1)

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14 **The midline of $y = 2\cos x + 1$ is**

A $y = 1$

B $y = 0$

C $y = 2$

D $y = 3$

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15 **A menu offers 4 main dishes, 3 desserts and 5 drinks. The number of meals with one of each is ____.**

ANSWER _____

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16 **Simple interest on 5000 dollars at 8 percent per year for 2 years, in dollars, is ____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

17 **The directrix of the parabola $x^2 = -8y$ is**

- **A** $y = -2$
- **B** $x = 2$
- **C** $y = 2$
- **D** $x = -2$

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18 **For a line of best fit with slope 2.5, an increase of 1 in x is linked to**

- **A** no change in y
- **B** an increase of 2.5 in y
- **C** a decrease of 2.5 in y
- **D** an increase of 1 in y

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19 If the odds in favour of a team are 3 to 2, the probability the team wins is

- **A** $\frac{2}{3}$
- **B** $\frac{3}{2}$
- **C** $\frac{3}{5}$
- **D** $\frac{2}{5}$

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20 Monthly income is 4000 dollars. Expenses are rent 1200, food 500, transport 300 and other costs 800 dollars. Monthly savings, in dollars, are ____.

ANSWER _____

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21 The conic $\frac{x^2}{4} - \frac{y^2}{9} = 1$ is a

- **A** circle
- **B** ellipse
- **C** parabola
- **D** hyperbola

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22 A quadratic model is $y = x^2 - 2x + 1$. The predicted value when $x = 4$ is _____.

ANSWER _____

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23 The probability that two fair dice are both even is

- A $\frac{1}{2}$
- B $\frac{1}{3}$
- C $\frac{1}{4}$
- D $\frac{1}{6}$

Understand It with Pulse | Flag a mistake

24 In the early years of a mortgage, most of each payment goes to

- A the principal
- B property taxes only
- C insurance only
- D interest

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25 **A Koch curve of length 12 is redrawn once. Each segment is replaced by 4 segments each one third as long. The new total length is ____.**

ANSWER _____

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26 **The domain of y = log(x - 2) is**

A x > 2

B x > 0

C x ≥ 2

D all x

Understand It with Pulse | Flag a mistake

27 **A spinner has 8 equal sections, 3 of them red. The probability of landing on red is**

A $\frac{1}{8}$

B $\frac{3}{8}$

C $\frac{5}{8}$

D $\frac{3}{4}$

Understand It with Pulse | Flag a mistake

28 **A buyer buys 10 shares at 50 dollars each and sells them at 65 dollars each. The profit, in dollars, is ____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

29 The centre of the hyperbola $\frac{(x - 1)^2}{4} - \frac{(y + 2)^2}{9} = 1$ is

- A (1, 2)
- B (-1, -2)
- C (-1, 2)
- D (1, -2)

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30 The period of y = cos 2x is

- A $\frac{\pi}{2}$
- B π
- C 2π
- D 4π

Understand It with Pulse | Flag a mistake

31 **The number of ordered choices of 2 students from 6, with no repeats, is ____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

32 **Simple interest on 2000 dollars at 3 percent per year for 4 years, in dollars, is ____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

33 **The conic $9x^2 + 9y^2 = 81$ is a**

A circle

B ellipse

C parabola

D hyperbola

Understand It with Pulse | Flag a mistake

34 If $f(x) = 4 \cdot 3^x$, then the value of $f(2)$ is ____.

ANSWER _____

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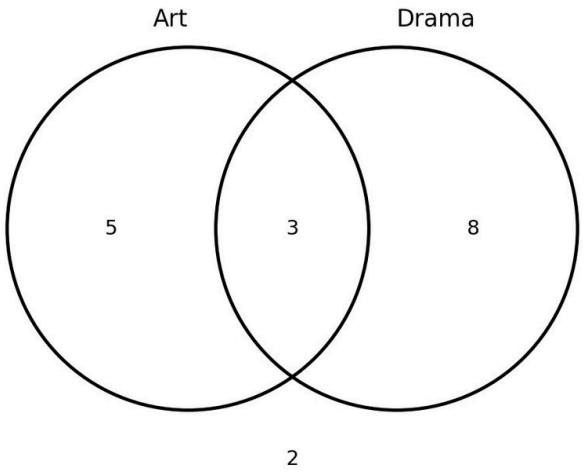
35 The diagram shows students who take Art, Drama, or neither. The total number who take Art is



A 3

B 5

C 8

D 13

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36 The graph shows savings growing by 600 dollars each year. The savings, in dollars, after 2 years are

- A 600
- B 1200
- C 1800
- D 2400

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37 The length of the major axis of $\frac{x^2}{36} + \frac{y^2}{16} = 1$ is

- A 6
- B 8
- C 12
- D 16

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38 **The period of $y = \sin 2x$ is**

- A $\frac{\pi}{2}$
- B π
- C 2π
- D 4π

Understand It with Pulse | Flag a mistake

39 **A game pays 20 dollars with probability $\frac{1}{4}$ and 0 dollars otherwise. The expected value, in dollars, is ____.**

ANSWER _____

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40 **Simple interest on 1500 dollars at 6 percent per year for 3 years, in dollars, is ____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

41 **The vertices of the hyperbola $\frac{y^2}{25} - \frac{x^2}{4} = 1$ are**

A (± 5, 0)

B (0, ± 2)

C (0, ± 5)

D (± 2, 0)

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42 **A correlation coefficient of 0.05 shows**

A a strong positive correlation

B a strong negative correlation

C almost no linear correlation

D a perfect negative correlation

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43 **A two-digit number has a non-zero first digit. The number of such two-digit numbers is ____.**

ANSWER _____

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44 **Rent is an example of a**

A fixed expense

B variable expense

C one-time windfall

D source of income

Understand It with Pulse | Flag a mistake

45 The graph shows the parabola $y = (x - 1)^2 - 2$. Its vertex, marked V, is

A (1, 2)

B (-1, -2)

C (1, -2)

D (-1, 2)

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46 An amount of 100 dollars grows by 5 percent per year, compounded. After 2 years, the amount, in dollars, is ____.

ANSWER _____

Understand It with Pulse | Flag a mistake

47 **The probability of drawing a face card from a standard 52-card deck is**

A $\frac{1}{13}$

B $\frac{3}{13}$

C $\frac{1}{4}$

D $\frac{4}{13}$

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48 **A buyer buys 20 shares at 25 dollars each and sells them at 32 dollars each. The profit, in dollars, is ____.**

ANSWER _____

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49 **Which of the following shapes is self-similar**

- A Koch snowflake
- B rectangle
- C straight line
- D ordinary circle

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50 **For a line of best fit with a negative slope, as x increases, y tends to**

- A increase
- B decrease
- C stay the same
- D reach zero at once

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ANSWER KEY

1.	D	**18.**	B	**35.**	C
2.	D	**19.**	C	**36.**	B
3.	60	**20.**	1200	**37.**	C
4.	1102.5	**21.**	D	**38.**	B
5.	D	**22.**	9	**39.**	5
6.	5	**23.**	C	**40.**	270
7.	B	**24.**	D	**41.**	C
8.	360000	**25.**	16	**42.**	C
9.	A	**26.**	A	**43.**	90
10.	D	**27.**	B	**44.**	A
11.	C	**28.**	150	**45.**	C
12.	A	**29.**	D	**46.**	110.25
13.	A	**30.**	B	**47.**	B
14.	A	**31.**	30	**48.**	140
15.	60	**32.**	240	**49.**	A
16.	800	**33.**	A	**50.**	B
17.	C	**34.**	36		

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