ONTARIO FUNCTIONS AND APPLICATIONS, GRADE 11, UNIVERSITY/COLLEGE PREPARATION (MCF3M) · 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 **A ball is thrown up with height h(t) = -5t² + 20t The time, in seconds, to reach maximum height is**

- A 4
- B 1
- C 2
- D 3

Understand It with Pulse | Flag a mistake

2 **A savings account starts at 800 dollars and grows by 10 percent each year. After 2 years the balance, to the nearest dollar, is**

- A 1048
- B 968
- C 888
- D 960

Understand It with Pulse | Flag a mistake

3 **A ladder leans against a wall forming a right triangle with legs 6 and 8 The length of the ladder is**

- A 10
- B 11
- C 9
- D 14

Understand It with Pulse | Flag a mistake

4 **A loan of 1200 dollars is repaid in 12 equal monthly payments with no interest. Each payment, in dollars, is**

- A 110
- B 90
- C 200
- D 100

Understand It with Pulse | Flag a mistake

5 **A rectangular garden has length 6 metres more than its width, and its area is 12 m². Its width, in metres, is**

- A 2
- B 3
- C 4
- D 1

Understand It with Pulse | Flag a mistake

6 **Bacteria double every hour. Starting with 50 bacteria, the number after 2 hours is**

- A 100
- B 211
- C 250
- D 200

Understand It with Pulse | Flag a mistake

7 **A ramp rises 3 metres over a slope of length 6 metres. The angle of elevation, in degrees, is**

- A 45
- B 60
- C 30
- D 15

Understand It with Pulse | Flag a mistake

8 **Buying 4 tickets at 25 dollars each costs, in dollars,**

A 110

B 90

C 100

D 29

Understand It with Pulse | Flag a mistake

9 **A ball is thrown and its height follows $y = (x - 2)^2 + 3$ The vertex of this parabola is**

A (2, 3)

B (-2, 3)

C (2, -3)

D (-2, -3)

Understand It with Pulse | Flag a mistake

10 **Simple interest: 1000 dollars is invested for reference only. An amount of 1000 dollars at 5 percent simple interest for 2 years earns interest, in dollars, of**

- A 50
- B 200
- C 100
- D 150

Understand It with Pulse | Flag a mistake

11 **A tree casts a shadow 12 metres long and the angle of elevation of the sun is 45 degrees. The height of the tree, in metres, is**

- A 12
- B 17
- C 7
- D 24

Understand It with Pulse | Flag a mistake

12 **Compound interest: an amount of 1000 dollars at 10 percent per year, compounded annually, for 1 year grows to, in dollars,**

- A 1150
- B 1050
- C 1100
- D 1010

Understand It with Pulse | Flag a mistake

13 **The zeros of y = (x - 2)(x + 3) are**

- A x = 2, x = -3
- B x = -2, x = 3
- C x = 2, x = 3
- D x = -2, x = -3

Understand It with Pulse | Flag a mistake

14 The function $y = 3(2^x)$ has y intercept

- **A** 6
- **B** 0
- **C** 3
- **D** 4

Understand It with Pulse | Flag a mistake

15 A tree casts a shadow 12 metres long when the sun angle is 45 degrees. The height of the tree, in metres, is

ANSWER _____

Understand It with Pulse | Flag a mistake

16 **A loan of 2400 dollars is repaid in 12 equal monthly payments with no interest. Each payment, in dollars, is**

- A 210
- B 190
- C 200
- D 400

Understand It with Pulse | Flag a mistake

17 **A company revenue model is $R(x) = -2x^2 + 60x$ where x is price in dollars. The revenue is zero when x is 0 or**

- A 15
- B 60
- C 32
- D 30

Understand It with Pulse | Flag a mistake

18 **A town population of 2000 grows by 4 percent each year. After 1 year the population is**

A 2080

B 2130

C 2030

D 2004

Understand It with Pulse | Flag a mistake

19 **In a right triangle, the side opposite angle A is 7 and the hypotenuse is 25. The value of sin A is**

ANSWER _____

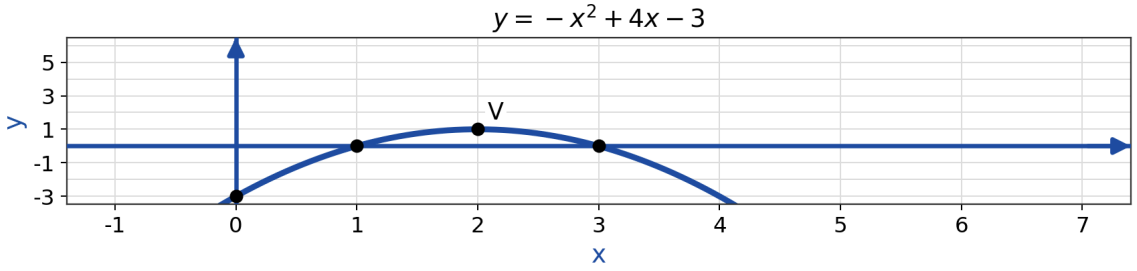
Understand It with Pulse | Flag a mistake

20 **Buying 5 tickets at 20 dollars each costs, in dollars,**

- **A** 110
- **B** 90
- **C** 100
- **D** 25

Understand It with Pulse | Flag a mistake

21 **The graph shows a parabola with vertex marked V. The coordinates of V are Figure 2**



- **A** (-2, 1)
- **B** (2, 1)
- **C** (2, -1)
- **D** (3, 1)

Understand It with Pulse | Flag a mistake

22 **How many years will it take for an amount to grow by a factor of 16 if it doubles each year? The number of years is**

- A 4
- B 5
- C 3
- D 16

Understand It with Pulse | Flag a mistake

23 **Daily temperature follows T(t) = 8 sin t + 30 The maximum temperature is**

- A 38
- B 30
- C 8
- D 40

Understand It with Pulse | Flag a mistake

24 **Compound interest: an amount of 2000 dollars at 5 percent per year, compounded annually, for 1 year grows to, in dollars,**

- A 2150
- B 2050
- C 2005
- D 2100

Understand It with Pulse | Flag a mistake

25 **A company revenue model is $R(x) = -2x^2 + 80x$ where x is price in dollars. The revenue is zero when x is 0 or**

- A 20
- B 40
- C 80
- D 42

Understand It with Pulse | Flag a mistake

26 **A savings account starts at 800 dollars and grows by 10 percent each year. After 4 years the balance, to the nearest dollar, is**

- A 1251
- B 1091
- C 1120
- D 1171

Understand It with Pulse | Flag a mistake

27 **Daily temperature follows T(t) = 4 sin t + 15 The minimum temperature is**

- A 15
- B 11
- C 19
- D 0

Understand It with Pulse | Flag a mistake

28 **A person deposits 50 dollars each month for 10 months. The total deposited, in dollars, is**

A 500

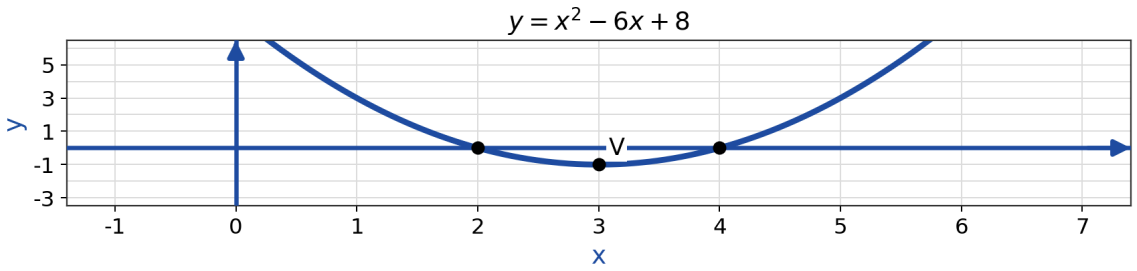
B 550

C 450

D 511

Understand It with Pulse | Flag a mistake

29 **The graph shows a parabola with vertex marked V. The coordinates of V are Figure 3**



A (-3, -1)

B (3, -1)

C (3, 1)

D (4, -1)

Understand It with Pulse

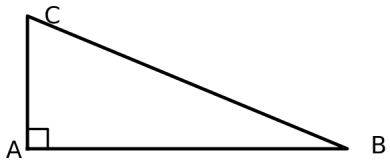
Flag a mistake

30 **Bacteria double every hour. Starting with 50 bacteria, the number after 4 hours is**

- A 200
- B 800
- C 400
- D 850

Understand It with Pulse | Flag a mistake

31 **The right triangle shown has its vertices marked. The length of its hypotenuse is Figure 2**



- A 15
- B 13
- C 11
- D 18

Understand It with Pulse | Flag a mistake

32 A budget of 1000 dollars is reduced by 100 dollars. The remaining budget, in dollars, is

- A 1000
- B 920
- C 1100
- D 900

Understand It with Pulse | Flag a mistake

33 A ball is thrown up with height $h(t) = -5t^2 + 25t$ The maximum height, in metres, is

- A 36.25
- B 26.25
- C 41.25
- D 31.25

Understand It with Pulse | Flag a mistake

34 **A radioactive sample starts at 400 grams and halves every day. The amount after 2 days, in grams, is**

- A 200
- B 100
- C 50
- D 400

Understand It with Pulse | Flag a mistake

35 **The value of sin 45° to two decimal places is**

- A 0.81
- B 0.61
- C 0.5
- D 0.71

Understand It with Pulse | Flag a mistake

36 **A person deposits 150 dollars each month for 4 months. The total deposited, in dollars, is**

- A 600
- B 750
- C 450
- D 611

Understand It with Pulse | Flag a mistake

37 **A quadratic function has zeros at 2 and 10 Its axis of symmetry is x equal to**

- A 6
- B 7
- C 5
- D 8

Understand It with Pulse | Flag a mistake

38 **Bacteria double every hour. Starting with 50 bacteria, the number after 5 hours is**

A 250

B 800

C 1600

D 1650

Understand It with Pulse | Flag a mistake

39 **The value of cos 30° to two decimal places is**

A 0.87

B 0.97

C 0.77

D 0.5

Understand It with Pulse | Flag a mistake

40 **Compound interest: an amount of 500 dollars at 10 percent per year, compounded annually, for 1 year grows to, in dollars,**

- A 600
- B 500
- C 550
- D 510

Understand It with Pulse | Flag a mistake

41 **A ball is thrown and its height follows $y = (x - 3)^2 - 4$ The vertex of this parabola is**

- A (3, -4)
- B (-3, -4)
- C (3, 4)
- D (-3, 4)

Understand It with Pulse | Flag a mistake

42 **Simple interest: 1000 dollars is invested for reference only. An amount of 500 dollars at 5 percent simple interest for 2 years earns interest, in dollars, of**

- A 25
- B 100
- C 50
- D 75

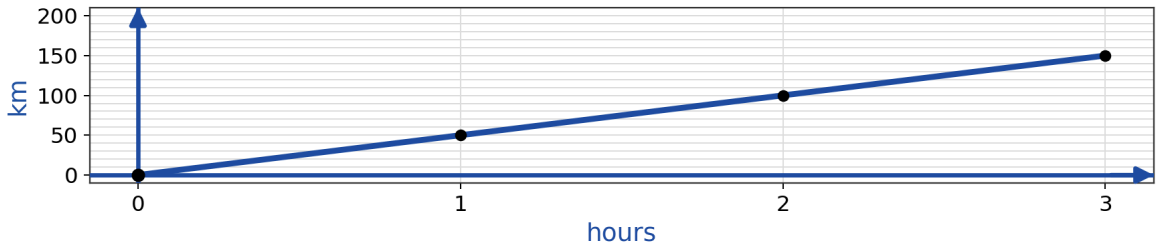
Understand It with Pulse | Flag a mistake

43 **A right triangle has legs 20 and 21 The hypotenuse length is**

- A 30
- B 28
- C 29
- D 41

Understand It with Pulse | Flag a mistake

44 **The graph shows distance travelled over time. The distance after 2 hours, in kilometres, is Figure 2**



- **A** 50
- **B** 150
- **C** 0
- **D** 100

Understand It with Pulse | Flag a mistake

45 **The y intercept of $y = x^2 - 3x + 10$ is**

- **A** 11
- **B** 10
- **C** 7
- **D** 0

Understand It with Pulse | Flag a mistake

46 **The function $y = 2(2^x)$ has y intercept**

A 4

B 2

C 0

D 3

Understand It with Pulse | Flag a mistake

47 **A right triangle has legs 7 and 24 The hypotenuse length is**

A 26

B 24

C 25

D 31

Understand It with Pulse | Flag a mistake

48 **Compound interest: an amount of 800 dollars at 5 percent per year, compounded annually, for 1 year grows to, in dollars,**

- A 890
- B 840
- C 790
- D 805

Understand It with Pulse | Flag a mistake

49 **The y intercept of $y = x^2 - 3x + 12$ is**

- A 13
- B 9
- C 0
- D 12

Understand It with Pulse | Flag a mistake

50 **The function $y = 4(2^x)$ has y intercept**

A 8

B 0

C 5

D 4

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	C	**18.**	A	**35.**	D
2.	B	**19.**	0.28	**36.**	A
3.	A	**20.**	C	**37.**	A
4.	D	**21.**	B	**38.**	C
5.	A	**22.**	A	**39.**	A
6.	D	**23.**	A	**40.**	C
7.	C	**24.**	D	**41.**	A
8.	C	**25.**	B	**42.**	C
9.	A	**26.**	D	**43.**	C
10.	C	**27.**	B	**44.**	D
11.	A	**28.**	A	**45.**	B
12.	C	**29.**	B	**46.**	B
13.	A	**30.**	B	**47.**	C
14.	C	**31.**	B	**48.**	B
15.	12	**32.**	D	**49.**	D
16.	C	**33.**	D	**50.**	D
17.	D	**34.**	B		

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