# اختبار تجريبي 3 في المتقدمة – ريفيل


| تم تحميل هذا الملف من موقع المناهج الإماراتية |
|---|
| موقع المناهج ⇦ المناهج الإماراتية ⇦ الصف الحادي عشر المتقدم ⇦ رياضيات ⇦ الفصل الأول ⇦ اختبارات ⇦ الملف |
| تاريخ إضافة الملف على موقع المناهج: 2026-11-24 21:14:29 |
| المزيد من مادة رياضيات: | ملفات ا كتب للمعلم ا كتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي ا للمدرس |

| التواصل الاجتماعي بحسب الصف الحادي عشر المتقدم | | | | | |
|---|---|---|---|---|---|
| صفحة المناهج الإماراتية على فيسبوك | | | | | |
| المواد على تلغرام | التربية الاسلامية | اللغة العربية | اللغة الانجليزية | الرياضيات | |


| المزيد من الملفات بحسب الصف الحادي عشر المتقدم والمادة رياضيات في الفصل الأول | |
|---|---|
| 1 | اختبار تجريبي 3 في المتقدمة – ريفيل |
| 2 | اختبار تجريبي في هيكل المتقدم – ريفيل |
| 3 | اختبار تجريبي في المتقدمة |
| 4 | اختبار تجريبي في الإحصاء والدوال المثلثية مع الحل |
| 5 | امتحان وزاري |


| تحميل تطبيق المناهج للهواتف الذكية | |
|---|---|
| تطبيق المناهج على App Store (آبل) | تطبيق المناهج على Play Google (أندرويد) |

# Mock Exam 3

Grade 11 Advanced Mathematics Reveal • Term 1 • 2026–2027

| Student Name: ..... | Class: ..... | Date: ..... |
|---|---|---|
| Total Marks: 100 | Part A: 60 Marks \| Part B: 40 Marks | Duration: 2 Hours |

**GENERAL INSTRUCTIONS**

1. Answer all questions. 2. Choose one answer for each multiple-choice question.
3. Show all steps clearly in Part B. 4. Use exact values where appropriate; otherwise round as instructed.
5. Calculator allowed.

## PART A — MULTIPLE CHOICE

20 Questions × 3 Marks = 60 Marks

Select the best answer (A, B, C, or D).

**1** The function $f(x) = 3^{x+1}$ is translated down 4 units to $g(x) = f(x) - 4$. What is the horizontal asymptote of $g$?

(A) $y = 0$ (B) $y = -4$
(C) $y = 3$ (D) $x = -4$

**2** Solve the inequality $4^{2x-1} < 64$.

(A) $x < 2$ (B) $x > 2$
(C) $x < \frac{3}{2}$ (D) $x > \frac{3}{2}$

**3** Which equation is equivalent to $\log_5 125 = 3$?

(A) $5^3 = 125$ (B) $3^5 = 125$
(C) $125^3 = 5$ (D) $5^{125} = 3$

## PART A — MULTIPLE CHOICE (CONTINUED)

Questions 4–8 • 3 Marks Each

**4** Solve $\log(x^2 - 9) = \log(3x + 3)$.

(A) $x = \dfrac{3 + \sqrt{57}}{2}$ only

(B) $x = \dfrac{3 - \sqrt{57}}{2}$ only

(C) Both roots of $x^2 - 3x - 12 = 0$

(D) No real solution

**5** Evaluate $\ln 20$. Round to four decimal places.

(A) $2.7268$

(B) $2.6309$

(C) $2.9957$

(D) $3.7268$

**6** Express $\ln 12 - 2\ln 2$ as a single natural logarithm.

(A) $\ln 3$

(B) $\ln 8$

(C) $\ln 10$

(D) $\ln 24$

**7** Simplify $\dfrac{x^2 - 16}{x^2 + 2x - 8}$ including all exclusions.

(A) $\dfrac{x - 4}{x - 2}$, $x \neq -4, 2$

(B) $\dfrac{x + 4}{x - 2}$, $x \neq -4, 2$

(C) $\dfrac{x - 4}{x + 4}$, $x \neq -4, 2$

(D) $\dfrac{x - 4}{x - 2}$, $x \neq 2$ only

**8** Simplify $\dfrac{3}{x - 2} \div \dfrac{6}{x + 1}$ including restrictions.

(A) $\dfrac{x + 1}{2(x - 2)}$, $x \neq 2, -1$

(B) $\dfrac{2(x - 2)}{x + 1}$, $x \neq 2, -1$

(C) $\dfrac{x - 2}{2(x + 1)}$, $x \neq 2, -1$

(D) $\dfrac{x + 1}{2(x - 2)}$, $x \neq 2$ only

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## PART A — MULTIPLE CHOICE (CONTINUED)

Questions 9–13 • 3 Marks Each

**9** For $f(x) = -\dfrac{2}{x+5} + 3$, identify the vertical and horizontal asymptotes.

(A) $\text{VA: } x = -5;\ \text{HA: } y = 3$

(B) $\text{VA: } x = 5;\ \text{HA: } y = 3$

(C) $\text{VA: } x = -5;\ \text{HA: } y = -2$

(D) $\text{VA: } x = 3;\ \text{HA: } y = -5$

**10** Solve $\dfrac{2x-1}{x+2} = 4$.

(A) $x = -\frac{9}{2}$

(B) $x = \frac{9}{2}$

(C) $x = -2$

(D) $x = -\frac{7}{2}$

**11** A bag contains 5 red, 4 blue, and 3 green counters. What is the probability of selecting a blue counter?

(A) $\frac{1}{4}$

(B) $\frac{1}{3}$

(C) $\frac{4}{9}$

(D) $\frac{2}{3}$

**12** A fair six-sided die is rolled 120 times and a 1 appears 18 times. Which pair gives the theoretical and experimental probabilities of rolling a 1?

(A) $\frac{1}{6}$ and $\frac{3}{20}$

(B) $\frac{1}{6}$ and $\frac{1}{5}$

(C) $\frac{1}{5}$ and $\frac{3}{20}$

(D) $\frac{3}{20}$ and $\frac{1}{6}$

**13** A simulation uses two-digit numbers $00$–$99$, with each number equally likely. Which assignment represents a $35\%$ chance of event $A$?

(A) 00–34

(B) 00–35

(C) 01–35

(D) 00–24

## PART A — MULTIPLE CHOICE (CONTINUED)

Questions 14–18 • 3 Marks Each

**14** Find the population standard deviation of the data set $1,\ 3,\ 3,\ 5,\ 8$. Round to two decimal places.

(A) $2.37$ (B) $2.50$

(C) $2.10$ (D) $5.60$

**15** Which positive angle is coterminal with $-70^\circ$?

(A) $250^\circ$ (B) $290^\circ$

(C) $310^\circ$ (D) $430^\circ$

**16** In a right triangle, the opposite side to angle $\theta$ is 9 and the hypotenuse is 15. What is $\sin\theta$?

(A) $\frac{3}{5}$ (B) $\frac{4}{5}$

(C) $\frac{5}{3}$ (D) $\frac{9}{4}$

**17** What is the period of $y = 2\cos(4x)$?

(A) $\frac{\pi}{2}$ (B) $\frac{\pi}{4}$

(C) $2\pi$ (D) $4\pi$

**18** A sinusoidal function has amplitude 5 and period $2\pi$. Which function could represent it?

(A) $y = 5\sin x$ (B) $y = 5\sin 2x$

(C) $y = 2\sin 5x$ (D) $y = 5\cos 4x$

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## PART A — MULTIPLE CHOICE (CONTINUED)

Questions 19–20 • 3 Marks Each

**19** What is the period of $y = \sec(2x)$?

(A) $\pi$

(B) $2\pi$

(C) $\frac{\pi}{2}$

(D) $4\pi$

**20** Find the principal value of $\cos^{-1}\left(\frac{\sqrt{2}}{2}\right)$.

(A) $45°\ \left(\frac{\pi}{4}\right)$

(B) $135°\ \left(\frac{3\pi}{4}\right)$

(C) $315°\ \left(\frac{7\pi}{4}\right)$

(D) $60°\ \left(\frac{\pi}{3}\right)$

**PART A SCRATCH / CALCULATION NOTES**



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## PART B — WRITTEN RESPONSE

40 Marks Total

### QUESTION 21. Natural Exponential and Logarithmic Functions

8 Marks

Consider the function $f(x) = 3e^{x-2} + 2$. Show your working:

(a) State the domain and range. (2 marks)

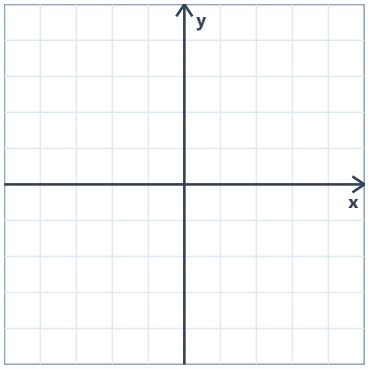
(b) Identify the horizontal asymptote and the $y$-intercept. (2 marks)

(c) Find the average rate of change on the interval $[0, 2]$. Give your answer to two decimal places. (2 marks)

(d) Sketch the graph, labeling the asymptote and $y$-intercept. (2 marks)

**WORKING & ADDITIONAL SPACE**

**Coordinate Grid**



## QUESTION 22. Exponential Growth and Decay

8 Marks

A substance has an initial mass of $120$ **grams** and decays continuously at a rate of $4\%$ **per year**.

(a) Write a continuous exponential decay model for the mass $M(t)$. (2 marks)

(b) Find the mass remaining after $8$ years. (3 marks)

(c) Determine the time required for the mass to decrease to $60$ grams. (3 marks)

**WORKING & ADDITIONAL SPACE**

## QUESTION 23. Rational Functions: Discontinuities and Graphs

8 Marks

Consider $f(x) = \dfrac{x^2 - 2x - 8}{x - 4}$. Show your working:

(a) Factor the numerator and simplify the function, stating any restriction from the original function. (2 marks)

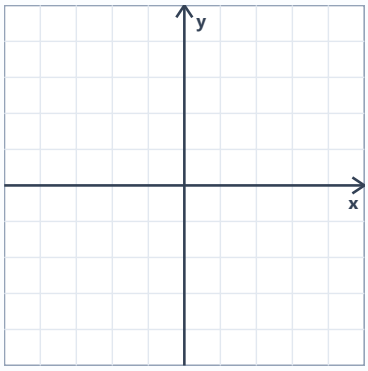
(b) Identify any point discontinuity (hole), if it exists. (2 marks)

(c) State the $x$- and $y$-intercepts and describe the graph. (2 marks)

(d) Sketch the graph and label all key features. (2 marks)

**WORKING & ADDITIONAL SPACE**

**Coordinate Grid**



## QUESTION 24. Normal Distribution and the Empirical Rule

8 Marks

The scores on a mathematics assessment are approximately normally distributed with a **mean** $\mu = 68$ and a **standard deviation** $\sigma = 6$.

(a) Find the interval that contains approximately the middle 95% of the scores. (2 marks)

(b) Estimate the percentage of scores greater than $74$. (2 marks)

(c) Estimate the percentage of scores between $62$ and $80$. (2 marks)

(d) A student scores $50$. How many standard deviations below the mean is this score? (2 marks)

**WORKING & ADDITIONAL SPACE**

## QUESTION 25. Radian Measure, Arc Length, and Trigonometric Graphs — 8 Marks

A circular track has a radius of $15$ **meters**. A runner completes an angle of $144^\circ$ around the center. Show your working:

(a) Convert $144^\circ$ to radians. (2 marks)

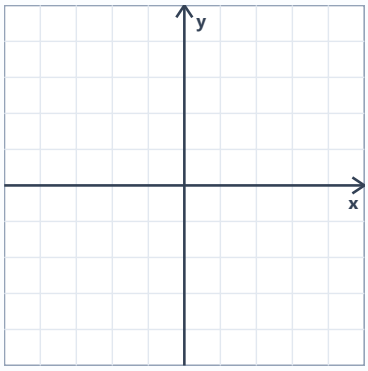
(b) Find the arc length traveled. Give the exact answer in terms of $\pi$. (2 marks)

(c) For $y = 4\cos\left(x + \frac{\pi}{3}\right)$, state the amplitude, period, and phase shift. (2 marks)

(d) Sketch one complete cycle and label the key points. (2 marks)

**WORKING & ADDITIONAL SPACE**

**Coordinate Grid**



## END OF EXAMINATION

Check your answers and make sure your name is written on every page.

**FINAL REVIEW & EXTRA WORKING SPACE**



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