EOT EXAM COVERAGE EXPLANATION - Reveal الفصل نهاية

تم تحميل هذا الملف من موقع المناهج الإماراتية
موقع المناهج ⇦ المناهج الإماراتية ⇦ الصف الحادي عشر المتقدم ⇦ رياضيات ⇦ الفصل الأول ⇦ ملفات متنوعة ⇦ الملف
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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
إعداد: Ziad Mohammed

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	EOT EXAM COVERAGE EXPLANATION - Reveal الفصل نهاية
2	EOT Exam Coverage Explanation ريفيل
3	أسئلة الهيكل الوزاري الإلكتروني اختيار من متعدد بدون حل
4	الهيكل الوزاري – الجزء الإلكتروني – أسئلة اختيار من متعدد بدون حل – الدرس 1-5 دالة النمو الأسي – Reveal
5	اختبار المناهج 1 الهيكل الوزاري Bridge

تحميل تطبيق المناهج للهواتف الذكية	
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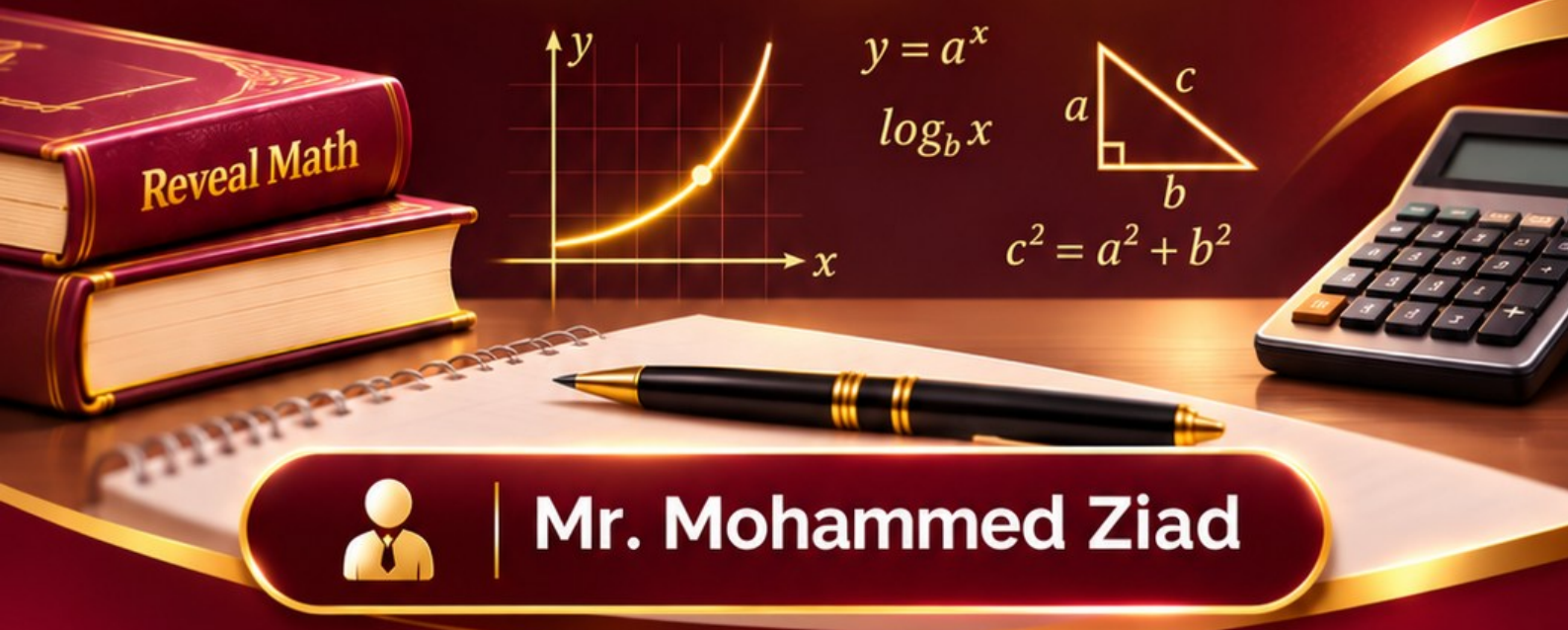
EXAM COVERAGE EXPLANATION

STUDY BOOKLET

GRADE 11 ADVANCED REVEAL

MATHEMATICS

ACADEMIC YEAR 2026 – 2027 | TERM 1



Mr. Mohammed Ziad

Mr. Mohammed Ziad

اكتشف جميع قنواتنا

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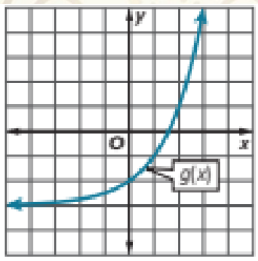
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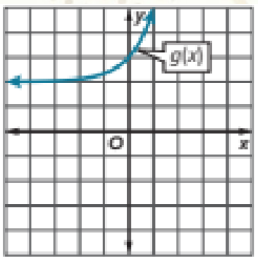


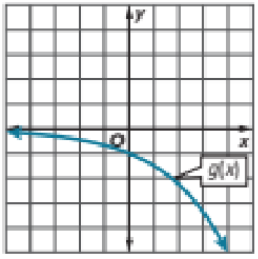
◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q1 Graph exponential growth functions. | Reveal (English) (11–13) | Page 221

Use the textbook graphs for Exercises 11–13.







Exercise 11 | $f(x) = 2^x$; $g(x) = f(x) + k$ Use graph 11 to identify the value of k.

A. $k = -2$
B. $k = -3$
C. $k = 3$
D. $k = 2$

Exercise 12 | $f(x) = 3^x$; $g(x) = f(x) + k$ Use graph 12 to identify the value of k.

A. $k = -2$
B. $k = 3$
C. $k = 2$
D. $k = 1$

Exercise 13 | $f(x) = \left(\frac{3}{2}\right)^x$; $g(x) = k \cdot f(x)$ Use graph 13 to identify the value of k.

A. $k = 1$
B. $k = 2$
C. $k = -2$
D. $k = -1$

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q2	Solve exponential inequalities.	Reveal (English) (23, 29, 32, 34)	Page 230

Exercise 23 | Solve : $625 \geq 5^{a+8}$

A. $a \geq -4$

B. $a \leq -4$

C. $a \leq 4$

D. $a \geq 4$

Exercise 29 | Solve: $\left(\frac{1}{64}\right)^{c-2} < 32^{2c}$

A. $c < \frac{3}{4}$

B. $c < \frac{-3}{4}$

C. $c > \frac{3}{4}$

D. $c > \frac{-3}{4}$

Exercise 32 | Solve: $\left(\frac{1}{9}\right)^{3t+5} \leq \left(\frac{1}{243}\right)^{t-6}$

A. $t \geq 40$

B. $t \leq -40$

C. $t \leq 40$

D. $t \geq -40$

Exercise 34 | Solve: $10^{5b+2} > 1000$

A. $b > \frac{1}{5}$

B. $b > 5$

C. $b < \frac{1}{5}$

D. $b < \frac{-1}{5}$

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q3 | Write logarithmic expressions in exponential form and exponential expressions in logarithmic form. | Reveal (English) (1–12) | Page 265

Exercises 1–6: exponential form. Exercises 7–12: logarithmic form.

Exercise 1 | Which is the correct exponential form of the written equation? $\log_{15}225 = 2$

A. $2^{15} = 225$
B. $15^2 = 2$
C. $15^2 = 225$
D. $225^2 = 15$

Exercise 2 | Which is the correct exponential form of the written equation? $\log_3\left(\frac{1}{27}\right) = -3$

A. $3^{-3} = 27$
B. $3^3 = \frac{1}{27}$
C. $\left(\frac{1}{27}\right)^{-3} = 3$
D. $3^{-3} = \frac{1}{27}$

Exercise 3 | Which is the correct exponential form of the written equation? $\log_5\left(\frac{1}{25}\right) = 2$

A. $5^2 = \frac{1}{25}$
B. $2^5 = \frac{1}{25}$
C. $\left(\frac{1}{25}\right)^2 = 5$
D. $5^{-2} = \frac{1}{25}$

Exercise 4 | Which is the correct exponential form of the written equation? $\log_3 243 = 5$

A. $243^3 = 5$
B. $3^5 = 243$
C. $5^3 = 243$
D. $3^5 = 5$

Exercise 5 | **Which is the correct exponential form of the written equation?** $\log_4 64 = 3$

A. $4^6 = 3$
B. $3^4 = 64$
C. $4^3 = 64$
D. $64^3 = 4$

Exercise 6 | **Which is the correct exponential form of the written equation?** $\log_4 32 = \frac{5}{2}$

A. $32^{\frac{5}{2}} = 4$
B. $\left(\frac{5}{2}\right)^4 = 32$
C. $4^{\frac{2}{5}} = 32$
D. $4^{\frac{5}{2}} = 32$

Exercise 7 | **Which is the correct logarithmic form of the written equation?** $2^7 = 128$

A. $\log_2 128 = 7$
B. $\log_2 7 = 128$
C. $\log_7 128 = 2$
D. $\log_{128} 2 = 7$

Exercise 8 | **Which is the correct logarithmic form of the written equation?** $3^{-4} = \frac{1}{81}$

A. $\log_{\frac{1}{81}} 3 = -4$
B. $\log_3 \left(\frac{1}{81}\right) = -4$
C. $\log_3 81 = -4$
D. $\log_3 \left(\frac{1}{81}\right) = 4$

Exercise 9 | **Which is the correct logarithmic form of the written equation?** $7^{-2} = \frac{1}{49}$

A. $\log_{\frac{1}{49}} 7 = -2$
B. $\log_7 49 = -2$
C. $\log_7 \left(\frac{1}{49}\right) = -2$
D. $\log_7 \left(\frac{1}{49}\right) = 2$

Exercise 10 | Which is the correct logarithmic form of the written equation? $\left(\frac{1}{7}\right)^3 = \frac{1}{343}$

A. $\log_{\frac{1}{7}} 3 = \frac{1}{343}$

B. $\log_{\frac{1}{343}} \left(\frac{1}{7}\right) = 3$

C. $\log_7 \left(\frac{1}{343}\right) = 3$

D. $\log_{\frac{1}{7}} \left(\frac{1}{343}\right) = 3$

Exercise 11 | Which is the correct logarithmic form of the written equation? $2^9 = 512$

A. $\log_2 512 = 9$

B. $\log_9 512 = 2$

C. $\log_{512} 2 = 9$

D. $\log_2 9 = 512$

Exercise 12 | Which is the correct logarithmic form of the written equation? $64^{\frac{2}{3}} = 16$

A. $\log_{16} 64 = \frac{2}{3}$

B. $\log_{64} 16 = \frac{2}{3}$

C. $\log_{64} \left(\frac{2}{3}\right) = 16$

D. $\log_{\frac{2}{3}} 16 = 64$

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q4	Solve logarithmic equations using the properties of logarithms.	Reveal (English) (7–12)	Page 273

Exercise 7 | Solve : $\log_4(2x^2-4)=\log_4(2x)$

A. $x=-1$ or 2
B. $x=-1$
C. No real solution
D. $x=2$

Exercise 8 | Solve : $\log_5(x^2-6)=\log_5 x$

A. $x=3$
B. $x=6$
C. $x=-2$ or 3
D. $x=-2$

Exercise 9 | Solve : $\log_3(x^2-8)=\log_3(2x)$

A. $x=-2$ or 4
B. $x=4$
C. $x=2$
D. $x=-2$

Exercise 10 | Solve : $\log_4(2x^2 - 20) = \log_4(6x)$

A. $x = 10$

B. $x = -2$ or 5

C. $x = 5$

D. $x = -2$

Exercise 11 | Solve : $\log_2(6x^2 + 1) = \log_2(5x)$

A. No real solution

B. $x = \frac{1}{3}$ only

C. $x = \frac{1}{2}$ only

D. $x = \frac{1}{3}$ or $\frac{1}{2}$

Exercise 12 | Solve : $\log_6(6x^2 - 3) = \log_6(7x)$

A. $x = \frac{3}{2}$

B. No real solution

C. $x = \frac{-1}{3}$

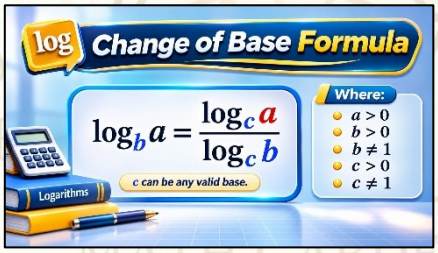
D. $x = \frac{-1}{3}$ or $\frac{3}{2}$

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q5	Evaluate logarithmic expressions using the Change of Base Formula.	Reveal (English) Example 5	Page 279

Exercise Example 5 | **Evaluate $\log_2 11$** using the Change of Base Formula. Round to four decimal places.

A. 4.4594
B. 2.4594
C. 3.4594
D. 3.3219



Extra questions:

1. Which of the following expressions is equivalent to $\log_4 15$ using common logarithms?

A. $\frac{\log 4}{\log 15}$

B. $\frac{\log 15}{\log 4}$

C. $\frac{\log 15}{\log 10}$

D. $\frac{\log 10}{\log 4}$

2. Using the Change of Base Formula, express $\log_7 21$ in terms of logarithms to base 3.

A. $\frac{\log_3 7}{\log_3 21}$

B. $\frac{\log_3 21}{\log_3 3}$

C. $\frac{\log_3 21}{\log_3 7}$

D. $\frac{\log_3 21}{\log_7 3}$

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q6	Evaluate expressions involving the natural base and natural logarithm.	Reveal (English) Example 3	Page 286

Exercise Example 3 | **Express** $\left(\frac{1}{3}\right)\ln 8 - \ln 3 + \ln 9$ as a single natural logarithm.

A. $\ln 6$

B. $\ln\left(\frac{8}{3}\right)$

C. $\ln 18$

D. $\ln 2$

Extra questions:

QUESTION 1 **Express** $\left(\frac{1}{2}\right)\ln 64 + \ln 5 - \ln 4$ as a single natural logarithm.

A. $\ln 10$

B. $\ln 20$

C. $\ln\left(\frac{5}{2}\right)$

D. $\ln 160$

QUESTION 2 **Express** $2\ln 3 - \left(\frac{1}{3}\right)\ln 8 + \ln 5$ as a single natural logarithm.

A. $\ln\left(\frac{15}{2}\right)$

B. $\ln 90$

C. $\ln\left(\frac{9}{10}\right)$

D. $\ln\left(\frac{45}{2}\right)$

QUESTION 3 **Express** $\ln 18 - \left(\frac{1}{2}\right)\ln 9 - \left(\frac{1}{3}\right)\ln 27$ as a single natural logarithm.

A. $\ln 6$

B. $\ln 54$

C. $\ln 2$

D. $\ln\left(\frac{2}{3}\right)$

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q7 $\frac{x^2}{y}$	Simplify rational expressions.	Reveal (English) Example 1	Page 311

Exercise Example 1 | **Simplify** $\frac{x^2-2x-24}{2x^3+6x^2-8x}$. Include all exclusions from the original expression.

A. $\frac{x-6}{2x(x+1)}$, $x \neq -4, 0, 1$

B. $\frac{x-6}{2x(x-1)}$, $x \neq 0, 1$

C. $\frac{x-6}{2x(x-1)}$, $x \neq -4, 0, 1$

D. $\frac{x+6}{2x(x-1)}$, $x \neq -4, 0, 1$

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q8	Simplify complex algebraic fractions including rational expressions.	Reveal (English) (16–19)	Page 323

Exercise 16 | Simplify the complex fraction:

$$\frac{\frac{2}{x-3}+\frac{3x}{x^2-9}}{\frac{3}{x+3}-\frac{4x}{x^2-9}}$$

A. $\frac{-(5x+6)}{x+9}$

B. $\frac{-(5x+6)}{x-9}$

C. $\frac{5x+6}{x+9}$

D. $\frac{-(5x-6)}{x+9}$

Exercise 17 | Simplify the complex fraction:

$$\frac{\frac{4}{x+5}+\frac{9}{x-6}}{\frac{5}{x-6}-\frac{8}{x+5}}$$

A. $\frac{-(13x+21)}{3x+73}$

B. $\frac{-(13x+21)}{3x-73}$

C. $\frac{-(13x-21)}{3x-73}$

D. $\frac{13x+21}{3x-73}$

Exercise 18 | Simplify the complex fraction:

$$\frac{\frac{5}{x+6}-\frac{2x}{2x-1}}{\frac{x}{2x-1}+\frac{4}{x+6}}$$

A. $\frac{-(2x^2-2x+5)}{x^2+14x-4}$

B. $\frac{2x^2+2x+5}{x^2+14x-4}$

C. $\frac{-(2x^2+2x+5)}{x^2+14x-4}$

D. $\frac{-(2x^2+2x+5)}{x^2-14x-4}$

Exercise 19 | Simplify the complex fraction:

$$\frac{\frac{8}{x-9}-\frac{x}{3x+2}}{\frac{3}{3x+2}+\frac{4x}{x-9}}$$

A. $\frac{-(x^2-33x-16)}{12x^2-11x-27}$

B. $\frac{-(x^2+33x-16)}{12x^2+11x-27}$

C. $\frac{x^2-33x-16}{12x^2+11x-27}$

D. $\frac{-(x^2-33x-16)}{12x^2+11x-27}$

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q9 $\frac{x^2}{y}$

Graph transformations of reciprocal functions.

Reveal (English) (13–16)

Page 333

A vertical asymptote is abbreviated VA; a horizontal asymptote is HA.

Exercise 13 | **For $f(x) = \frac{1}{x+3} - 3$, identify the asymptotes. Use your working space to state the domain and range and sketch the transformed reciprocal curve.**

A. VA: $x = 3$; HA: $y = 3$

B. VA: $x = -3$; HA: $y = -3$

C. VA: $x = -2$; HA: $y = -3$

D. VA: $x = -3$; HA: $y = -2$

Exercise 14 | **For $f(x) = \frac{-1}{x+5} - 6$, identify the asymptotes. Use your working space to state the domain and range and sketch the transformed reciprocal curve.**

A. VA: $x = -5$; HA: $y = -5$

B. VA: $x = -6$; HA: $y = -5$

C. VA: $x = -5$; HA: $y = -6$

D. VA: $x = 5$; HA: $y = 6$

Exercise 15 | **For $f(x) = \frac{-1}{x+1} + 3$, identify the asymptotes. Use your working space to state the domain and range and sketch the transformed reciprocal curve.**

A. **VA:** $x = 1$; HA: $y = -3$
B. **VA:** $x = 3$; HA: $y = -1$
C. **VA:** $x = -1$; HA: $y = 4$
D. **VA:** $x = -1$; HA: $y = 3$

Exercise 16 | **For $f(x) = \frac{1}{x+4} - 2$, identify the asymptotes. Use your working space to state the domain and range and sketch the transformed reciprocal curve.**

A. **VA:** $x = -4$; HA: $y = -2$
B. **VA:** $x = 4$; HA: $y = 2$
C. **VA:** $x = -4$; HA: $y = -1$
D. **VA:** $x = -2$; HA: $y = -4$

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q10 $\frac{x^2}{y}$

Solve rational equations.

Reveal (English) Example 2

Page 356

Exercise Example 2 | Solve

$$\frac{2m}{m-4} - \frac{m^2+7m+4}{3m^2-18m+24} = \frac{4m}{3m-6}$$

A. $m = -1, 2,$ and 4

B. $m = 2$

C. $m = -1$

D. $m = 4$

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◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q11 Classify and determine study types.

Reveal (English) Learn • Types of Studies — Page 372

Exercise A | A school sends a questionnaire to a randomly selected group of students asking how often they exercise. Which type of study is used?

A. Survey
B. Observational study
C. Laboratory trial
D. Experiment

Exercise B | A researcher randomly assigns volunteers to two groups. One receives a new teaching method and the other receives the usual method; the results are compared. Which type of study is used?

A. Survey
B. Experiment
C. Observational study
D. Census

Exercise C | A biologist records how birds feed in a park without interacting with them or changing conditions. Which type of study is used?

A. Controlled trial
B. Survey
C. Observational study
D. Experiment

Exercise D | Which practice best helps a study sample represent its population?

A. Choose participants from a single convenient class
B. Ask only people who volunteer first
C. Select only students with the highest grades
D. Select participants randomly from the population

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q12 | **Find and compare experimental and theoretical probabilities.** | Reveal (English) Example 1 | Page 379

Exercise Example 1 | A fair 8-sided die is rolled 200 times. In the data table, the number 8 occurs 42 times. What are P(theoretical 8) and P(experimental 8), respectively?

A. $\left(\frac{1}{8}, 0.42\right)$

B. $\left(\frac{1}{8}, 0.21\right)$

C. $\left(\frac{1}{4}, 0.21\right)$

D. $\left(0.21, \frac{1}{8}\right)$

Number on Die	Frequency
1	28
2	19
3	24
4	22
5	21
6	18
7	26
8	42

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q13	Design simulations to estimate probabilities.	Reveal (English) (7, 8)	Page 384

BOOK REFERENCE • PRINTED p. 384 • PDF p. 399

Exercise 7 | **Describe a spinner with two outcomes where event A has probability 60%. Which design works?**

A. 5 equal sectors: 2 labeled A and 3 labeled B
B. 4 equal sectors: 3 labeled A and 1 labeled B
C. 10 equal sectors: 5 labeled A and 5 labeled B
D. 5 equal sectors: 3 labeled A and 2 labeled B

Exercise 8 | **A simulation must use $P(\text{blue}) = 40\%$, $P(\text{green}) = 20\%$, $P(\text{red}) = 30\%$,** and $P(\text{purple}) = 10\%$. Which assignment of random digits 0–9 is valid?

A. Blue: 0–3; Green: 4–5; Red: 6–8; Purple: 9
B. Blue: 0–4; Green: 5; Red: 6–8; Purple: 9
C. Blue: 0–3; Green: 4–6; Red: 7–8; Purple: 9
D. Blue: 0–2; Green: 3–4; Red: 5–8; Purple: 9

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q14 Describe a data distribution by its center, spread, and overall shape. (No graphing calculator needed.)

Reveal (English) Example 1; (1, 2) — Page 388, 391

Use the population standard deviation formula (divide by n), as demonstrated in the source textbook.

Exercise Example 1 | TRACK: The eight 400-m times (s) are 57.1, 55.9, 59.3, 54.9, 54.6, 50.3, 55.2, and 53.5. Find the population standard deviation to the nearest hundredth.

A. About 2.62 s
B. About 55.10 s
C. About 2.45 s
D. About 6.02 s

Exercise 1 | BARBER: The prices ($) of all pairs of shears are 50, 165, 55, 79, 84, 68, 38, and 42. Find the population standard deviation to the nearest cent.

A. $72.63
B. $40.85
C. $21.54
D. $38.22

Exercise 2 | READING: Students read 9, 6, 12, 8, 9, 14, 10, 13, and 8 books. Find the population standard deviation, nearest tenth.

A. 2.5 books
B. 2.6 books
C. 6.1 books
D. 9.9 books

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q15 ◿ **Draw and find angles in standard position.** | Reveal (English) Example 3 | Page 418

Exercise Example 3 | Find one positive and one negative angle coterminal with 35°.
Which pair is correct?

A. $(215°, -145°)$
B. $(360°, -360°)$
C. $(395°, -325°)$
D. $(325°, -395°)$

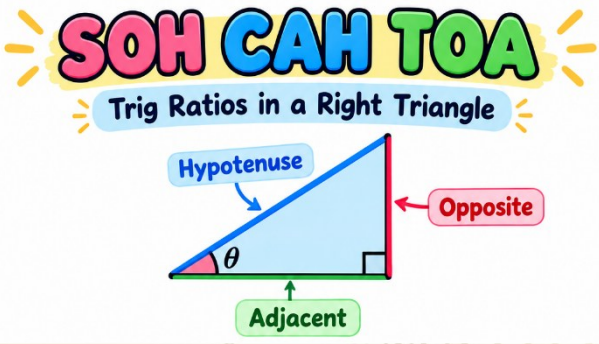
Extra questions:

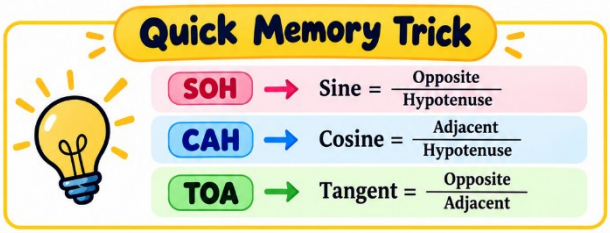
Question 1: Which of the following angles is coterminal with $(50°)$?
A. $310°$
B. $410°$
C. $-310°$
D. $-50°$

Question 2: Which of the following angles is coterminal with $(-125°)$?
A. $125°$
B. $-235°$
C. $235°$
D. $305°$

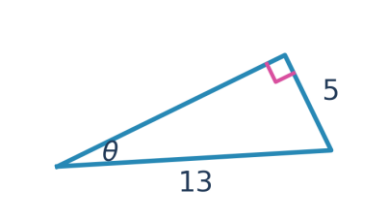
Q16 Find values of trigonometric ratios.

Reveal (English) (1–6) | Page 431





01 Find $\sin\theta$ and $\cos\theta$.



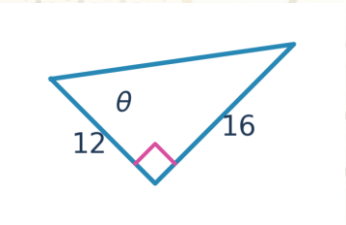
A. $\sin\theta = \frac{12}{13}$; $\cos\theta = \frac{5}{13}$

B. $\sin\theta = \frac{5}{13}$; $\cos\theta = \frac{12}{13}$

C. $\sin\theta = \frac{5}{12}$; $\cos\theta = \frac{12}{5}$

D. $\sin\theta = \frac{13}{5}$; $\cos\theta = \frac{13}{12}$

02 Find $\tan\theta$.



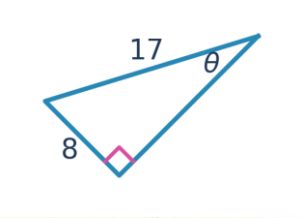
A. $\tan\theta = \frac{3}{4}$

B. $\tan\theta = \frac{4}{5}$

C. $\tan\theta = \frac{4}{3}$

D. $\tan\theta = \frac{5}{3}$

03 Find $\cos\theta$ and $\tan\theta$.



A. $\cos\theta = \frac{8}{17}$; $\tan\theta = \frac{15}{8}$

B. $\cos\theta = \frac{17}{15}$; $\tan\theta = \frac{8}{17}$

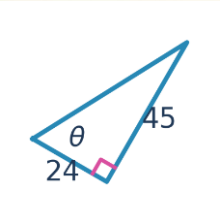
C. $\cos\theta = \frac{15}{17}$; $\tan\theta = \frac{15}{8}$

D. $\cos\theta = \frac{15}{17}$; $\tan\theta = \frac{8}{15}$

RIGHT-TRIANGLE TRIGONOMETRY

Choose the correct exact value(s) for each right triangle.

04 Find sin θ.



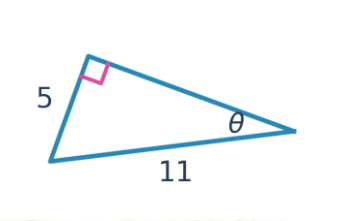
A. $\sin\theta = \frac{15}{17}$

B. $\sin\theta = \frac{8}{17}$

C. $\sin\theta = \frac{15}{8}$

D. $\sin\theta = \frac{17}{15}$

05 Find sin θ and cos θ.



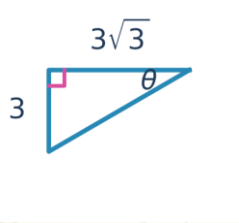
A. $\sin\theta = \frac{4\sqrt{6}}{11}$; $\cos\theta = \frac{5}{11}$

B. $\sin\theta = \frac{5}{4\sqrt{6}}$; $\cos\theta = \frac{11}{4\sqrt{6}}$

C. $\sin\theta = \frac{5}{11}$; $\cos\theta = \frac{4\sqrt{6}}{11}$

D. $\sin\theta = \frac{11}{5}$; $\cos\theta = \frac{11}{4\sqrt{6}}$

06 Find sin θ and tan θ.



A. $\sin\theta = \frac{1}{2}$; $\tan\theta = \sqrt{3}$

B. $\sin\theta = \frac{1}{2}$; $\tan\theta = \frac{\sqrt{3}}{3}$

C. $\sin\theta = \frac{\sqrt{3}}{2}$; $\tan\theta = \frac{\sqrt{3}}{3}$

D. $\sin\theta = \frac{\sqrt{3}}{2}$; $\tan\theta = \frac{1}{3}$

◈ PART A / MULTIPLE CHOICE / EOT COVERAGE

Q17 ◿

Use the properties of periodic functions to evaluate trigonometric functions.

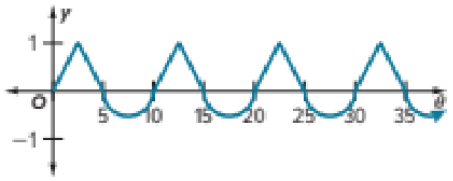
Reveal (English) (13–18)

Page 441

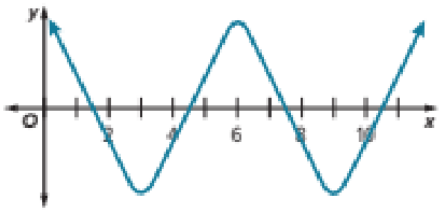
Use the original graphs from p. 441. Each exercise has its own graph number.

Determine the period of the function.

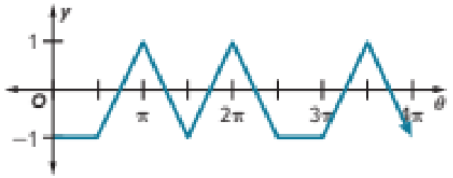
13.



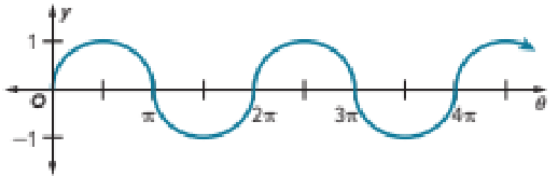
14.



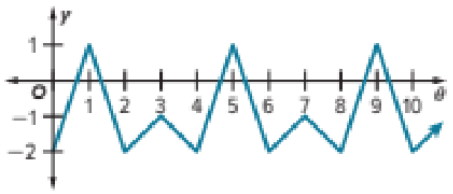
15.



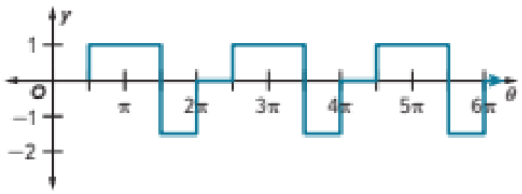
16.



17.



18.



Exercise 13 | **From graph 13, determine the period of the function.**

A. 15
B. 20
C. 5
D. 10

Exercise 14 | **From graph 14, determine the period of the function.**

A. 6
B. 12
C. 9
D. 3

Exercise 15 | From graph 15, determine the period of the function.

A. 2π

B. $\frac{5\pi}{2}$

C. 3π

D. π

Exercise 16 | From graph 16, determine the period of the function.

A. π

B. 4π

C. 2π

D. $\frac{\pi}{2}$

Exercise 17 | From graph 17, determine the period of the function.

A. 2

B. 5

C. 8

D. 4

Exercise 18 | From graph 18, determine the period of the function.

A. 2π

B. π

C. 3π

D. 4π

PART A

MULTIPLE CHOICE / EOT COVERAGE

Q18 Use sinusoidal functions to solve problems.

Reveal (English) Example 6; 11

Page 450, 479

Exercise Example 6 | The voltage supplied by an electrical outlet can be represented by a periodic function. The voltage oscillates between −120 and 120 volts, with a frequency of 50 cycles per second. Write and graph a function for the voltage V as a function of time t

A. $v(t) = 120\sin(50\pi t)$

B. $v(t) = 60\sin(100\pi t)$

C. $v(t) = 120\sin(100\pi t)$

D. $v(t) = 120\sin(2\pi t)$

Exercise 11 | A spring oscillates with a frequency of 1 cycle per second. The distance between the maximum and minimum points of the oscillation is 3 centimeters. Which of these functions can be used to model the oscillation if y represents the distance in centimeters from the equilibrium position and t is given in seconds

A. $y = 1.5\sin(\pi t)$

B. $y = 3\sin(2\pi t)$

C. $y = 3\sin(\pi t)$

D. $y = 1.5\sin(2\pi t)$

Q19 ◿ **Describe and graph trigonometric functions other than sine, cosine, and tangent.**

Reveal (English) (7–15) | Page 461

Identify the period and one vertical asymptote. The original exercises also ask you to sketch the graph and identify other asymptotes/extrema/intercepts: use the working space for these.

Exercise 7 | **For $y = \csc\left(\left(\frac{3}{4}\right)x\right)$,** choose the correct period and first positive vertical asymptote.

A. **Period** = π; first positive VA: $x = \frac{4\pi}{3}$

B. **Period** = $\frac{8\pi}{3}$; first positive VA: $x = \frac{4\pi}{3}$

C. **Period** = $\frac{8\pi}{3}$; first positive VA: $x = 2\pi$

D. **Period** = 4π; first positive VA: $x = \frac{\pi}{4}$

Exercise 8 | **For $y = \csc(3x)$,** choose the correct period and first positive vertical asymptote.

A. **Period** = 4π; first positive VA: $x = \frac{\pi}{4}$

B. **Period** = π; first positive VA: $x = \frac{\pi}{3}$

C. **Period** = $\frac{2\pi}{3}$; first positive VA: $x = \frac{\pi}{3}$

D. **Period** = $\frac{2\pi}{3}$; first positive VA: $x = 2\pi$

Exercise 9 | **For** $y = \left(\frac{1}{2}\right)\csc x$, choose the correct fundamental period and first strictly positive vertical asymptote. Use the space below to consider the remaining asymptotes and the graph.

A. **Period** = 2π; first positive VA: $x = 2\pi$
B. **Period** = 4π; first positive VA: $x = \frac{\pi}{4}$
C. **Period** = π; first positive VA: $x = \pi$
D. **Period** = 2π; first positive VA: $x = \pi$

Exercise 10 | **For** $y = \cot(2x)$, choose the correct fundamental period and first strictly positive vertical asymptote. Use the space below to consider the remaining asymptotes and the graph.

A. **Period** = $\frac{\pi}{2}$; first positive VA: $x = \frac{\pi}{2}$
B. **Period** = π; first positive VA: $x = \frac{\pi}{2}$
C. **Period** = $\frac{\pi}{2}$; first positive VA: $x = 2\pi$
D. **Period** = 4π; first positive VA: $x = \frac{\pi}{4}$

Exercise 11 | **For** $y = \cot\left(\left(\frac{1}{2}\right)x\right)$, choose the correct fundamental period and first strictly positive vertical asymptote. Use the space below to consider the remaining asymptotes and the graph.

A. **Period** = π; first positive VA: $x = 2\pi$
B. **Period** = 2π; first positive VA: $x = 2\pi$
C. **Period** = 2π; first positive VA: $x = \pi$
D. **Period** = 4π; first positive VA: $x = \frac{\pi}{4}$

Exercise 12 | **For** $y = -2\cot x$, choose the correct fundamental period and first strictly positive vertical asymptote. Use the space below to consider the remaining asymptotes and the graph.

A. **Period** = 4π; first positive VA: $x = \frac{\pi}{4}$
B. **Period** = 2π; first positive VA: $x = \pi$
C. **Period** = π; first positive VA: $x = \pi$
D. **Period** = π; first positive VA: $x = 2\pi$

Exercise 13 | **For $y = 3\sec x$,** choose the correct fundamental period and first strictly positive vertical asymptote. Use the space below to consider the remaining asymptotes and the graph.

A. **Period** = 4π; first positive VA: $x = \frac{\pi}{4}$
B. **Period** = π; first positive VA: $x = \frac{\pi}{2}$
C. **Period** = 2π; first positive VA: $x = 2\pi$
D. **Period** = 2π; first positive VA: $x = \frac{\pi}{2}$

Exercise 14 | **For** $y = \sec\left(\left(\frac{1}{3}\right)x\right)$, choose the correct fundamental period and first strictly positive vertical asymptote. Use the space below to consider the remaining asymptotes and the graph.

A. **Period** = 6π; first positive VA: $x = \frac{3\pi}{2}$
B. **Period** = 4π; first positive VA: $x = \frac{\pi}{4}$
C. **Period** = π; first positive VA: $x = \frac{3\pi}{2}$
D. **Period** = 6π; first positive VA: $x = 2\pi$

Exercise 15 | **For** $y = \sec(4x)$, choose the correct fundamental period and first strictly positive vertical asymptote. Use the space below to consider the remaining asymptotes and the graph.

A. **Period** = π; first positive VA: $x = \frac{\pi}{8}$
B. **Period** = $\frac{\pi}{2}$; first positive VA: $x = \frac{\pi}{8}$
C. **Period** = $\frac{\pi}{2}$; first positive VA: $x = 2\pi$
D. **Period** = 4π; first positive VA: $x = \frac{\pi}{4}$

Q20 ◿ **Find values of angle measures by using inverse trigonometric functions.** | Reveal (English) (1–9) | Page 475

Exercise 1 | **Find the principal value of $\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)$.** Choose the correct degree and radian measures.

A. $150°; \frac{5\pi}{6}$

B. $-30°; \frac{-\pi}{6}$

C. $60°; \frac{\pi}{3}$

D. $30°; \frac{\pi}{6}$

Exercise 2 | **Find the principal value of $\sin^{-1}\left(\frac{-\sqrt{3}}{2}\right)$.** Choose the correct degree and radian measures.

A. $-60°; \frac{-\pi}{3}$

B. $-120°; \frac{-2\pi}{3}$

C. $60°; \frac{\pi}{3}$

D. $120°; \frac{2\pi}{3}$

Exercise 3 | **Find the principal value of $\arccos\left(\frac{-1}{2}\right)$.** Choose the correct degree and radian measures.

A. $60°; \frac{\pi}{3}$

B. $120°; \frac{2\pi}{3}$

C. $-60°; \frac{-\pi}{3}$

D. $240°; \frac{4\pi}{3}$

Exercise 4 | **Find the principal value of $\arctan(\sqrt{3})$.** Choose the correct degree and radian measures.

A. $120°; \frac{2\pi}{3}$

B. $-60°; \frac{-\pi}{3}$

C. $60°; \frac{\pi}{3}$

D. $30°; \frac{\pi}{6}$

Exercise 5 | **Find the principal value of** $\arccos\left(\frac{-\sqrt{2}}{2}\right)$. Choose the correct degree and radian measures.

A. $225°; \frac{5\pi}{4}$

B. $-45°; \frac{-\pi}{4}$

C. $45°; \frac{\pi}{4}$

D. $135°; \frac{3\pi}{4}$

Exercise 6 | **Find the principal value of** $\tan^{-1}(-1)$. Choose the correct degree and radian measures.

A. $-45°; \frac{-\pi}{4}$

B. $-135°; \frac{-3\pi}{4}$

C. $135°; \frac{3\pi}{4}$

D. $45°; \frac{\pi}{4}$

Exercise 7 | **Find the principal value of** $\sin^{-1}\left(\frac{\sqrt{2}}{2}\right)$. Choose the correct degree and radian measures.

A. $135°; \frac{3\pi}{4}$

B. $45°; \frac{\pi}{4}$

C. $-45°; \frac{-\pi}{4}$

D. $90°; \frac{\pi}{2}$

Exercise 8 | **Find the principal value of** $\cos^{-1}\left(\frac{-\sqrt{3}}{2}\right)$. Choose the correct degree and radian measures.

A. $30°; \frac{\pi}{6}$

B. $-150°; \frac{-5\pi}{6}$

C. $150°; \frac{5\pi}{6}$

D. $210°; \frac{7\pi}{6}$

Exercise 9 | **Find the principal value of** $\arcsin(1)$. Choose the correct degree and radian measures.

A. $-90°; \frac{-\pi}{2}$

B. $0°; 0$

C. $270°; \frac{3\pi}{2}$

D. $90°; \frac{\pi}{2}$

◈ PART B / FREE RESPONSE / EOT COVERAGE

Q21	Evaluate expressions involving the natural base and natural logarithm.	Reveal (English) (10–12)	Page 237

FREE-RESPONSE PRACTICE | Show complete reasoning and all required graphs.

REVEAL p. 237 • Exercises 10–12 (Example 2)

For each function, (a) graph the function; (b) determine the domain and range; and (c) find the average rate of change over the specified interval.

10. Consider the function $f(x) = 3e^{x-1} + 3$. Interval $[-5, -2]$.

11. Consider the function $f(x) = 4e^{2x} - 1$. Interval $[-3, -1]$.

12. Consider the function $f(x) = -2e^{x+3} + 2$. Interval $[-7, -4]$.

حَدِيقَةُ الرِّيَاضِيَّات MATH GARDEN

◈ PART B / FREE RESPONSE / EOT COVERAGE

Q22 ✓	Use logarithms to solve problems involving exponential growth and decay.	Reveal (English) Example 2	Page 297

FREE-RESPONSE PRACTICE | Show complete reasoning and all required graphs.

REVEAL p. 297 • Example 2 — Continuous Exponential Decay (continues on page 298)

SCIENCE: The half-life of a radioactive substance is the time it takes for half of the atoms of the substance to disintegrate. The radioactive substance Thorium-230 is used to determine the ages of cave formations and coral. The half-life of Thorium-230 is 75,381 years.

Part A. Determine the value of k and the equation of decay for Thorium-230.

Part B. How much of a 2-gram sample of Thorium-230 should be left after 1500 years?

◈ PART B / FREE RESPONSE / EOT COVERAGE

Q23	Graph rational functions with oblique asymptotes and point discontinuity.	Reveal (English) Example 4	Page 341

FREE-RESPONSE PRACTICE | Show complete reasoning and all required graphs.

REVEAL p. 341 • Example 4 — Graph with Oblique Asymptotes

Consider $f(x) = \frac{x^2+2x+1}{x+4}$.

Part A. Find the zeros.

Part B. Find the asymptotes.

◈ PART B / FREE RESPONSE / EOT COVERAGE

Q24 ✓	(a) Find areas under normal distribution curves. (b) Find probabilities and data values from probabilities.	Reveal (English) Example 5; 14	Page 397, 402

REVEAL p. 397 • Example 5 — Use the Empirical Rule to Analyze Data

A normal distribution has a mean of 42 and a standard deviation of 6.

a. Find the range of values that represents the middle 95% of the distribution.

b. What percent of the data will be greater than 36?

REVEAL p. 402 • Exercise 14 (Example 8)

TESTING: The scores on a test administered to prospective employees are normally distributed with a mean of 100 and a standard deviation of 12.3.

a. What percent of the scores are between 70 and 80?

b. What percent of the scores are over 115?

c. If 75 people take the test, how many would you expect to score lower than 75?

PART B / FREE RESPONSE / EOT COVERAGE

Q25	(a) Convert degrees and radians and find arc lengths. (b) Graph horizontal translations of trigonometric functions.	Reveal (English) Example 6; (52, 53); (7–12)	Page 420, 422, 469

REVEAL p. 420 • Example 6 — Find Arc Length

TRAFFIC: A traffic circle, or roundabout, is a circular roadway at the intersection of two or more streets that allows cars to travel through more continuously than a traffic light or stop sign. The diameter of a traffic circle is 160 feet. How far does a car travel in the roundabout if it goes three-fourths of the way around?

REVEAL p. 422 • Exercises 52 and 53 (Example 6)

Solve the following arc-length problems.

52. TRANSPORTATION: A traffic roundabout has a diameter of 200 meters. How far does an automobile travel in the roundabout if it goes one-fourth of the way around?

53. ANALOG CLOCKS: The length of the minute hand of an analog clock is 5 inches. If the minute hand rotates from 12 noon to 12:40 P.M., then how far does its point move?

REVEAL p. 469 • Exercises 7–12 (Example 2)

State the amplitude, period, and phase shift for each function. Then graph the function and state the domain and range.

7. $y = 3\cos(\theta - 45^\circ)$

8. $y = 2\sin(\theta + 60°)$

9. $y = \left(\frac{1}{2}\right)\sin\left[3\left(\theta - \frac{\pi}{3}\right)\right]$

10. $y = \left(\frac{1}{2}\right)\cos\left[3\left(\theta - \frac{\pi}{2}\right)\right]$

11. $y = 2\cos(\theta + 90°)$

12. $y = \left(\frac{1}{4}\right)\sin(\theta - 30^\circ)$