تجميعة أسئلة وفق مخرجات الهيكل الوزاري الجديد منهج ريفيل

أسئلة هيكل الرياضيات

EoT1 Mathematics

الحادي عشر متقدم

11 Advanced

الفصل الأول

2025-2026

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هيكل أسئلة الرياضيات
الفصل الأول
EoT1
11Advanced

القسم الالكتروني (اختيار من متعدد)
MCQ

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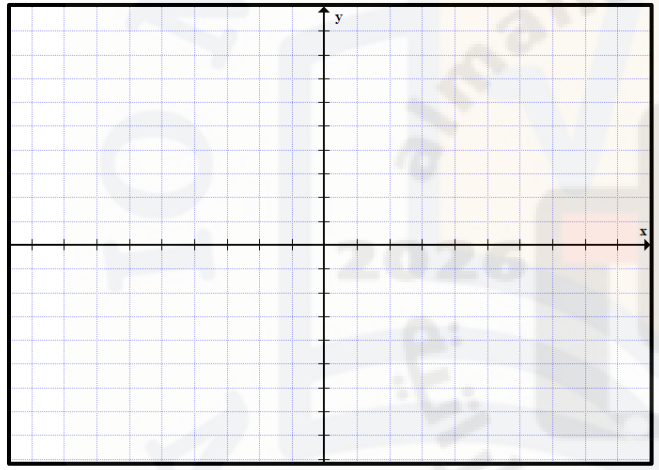
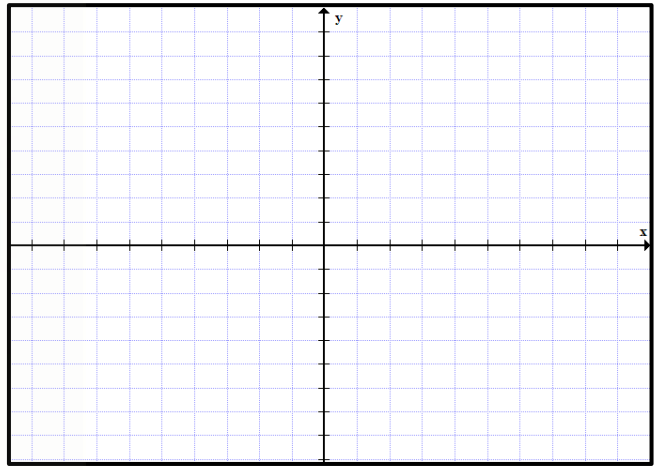
Q1	Learning Outcome/Performance Criteria**	Lesson 5-1	Exercise	Page
MCQ	Graph exponential growth functions	Graphing Exponential Functions	1-10 1	221 254

Graph each function. Find the domain, range, y-intercept, asymptote, and end behavior.

$f(x) = (3)^x$



$f(x) = (5)^x$



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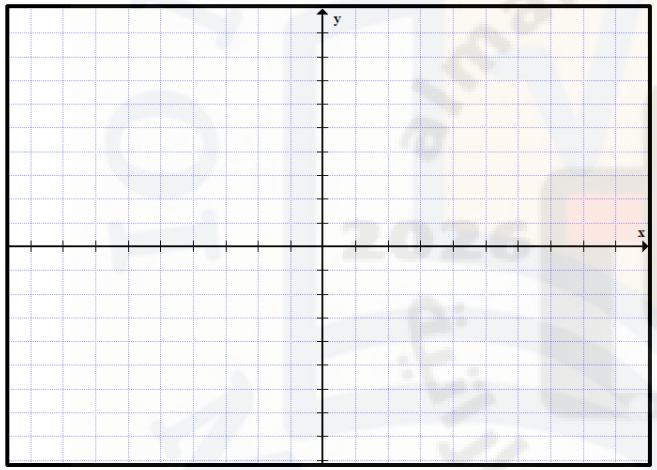
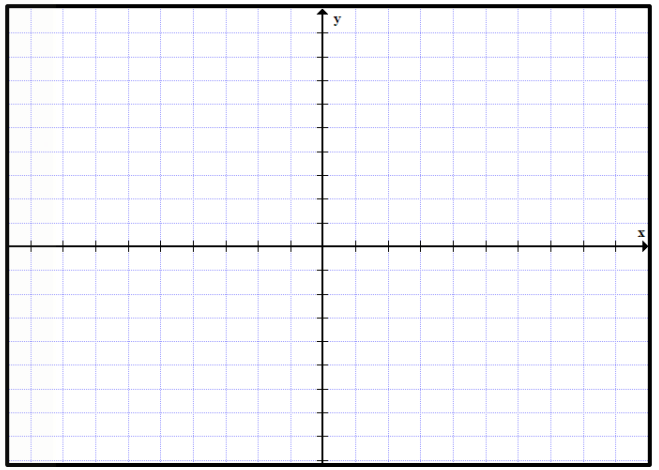
Graph each function. Find the domain, range, y-intercept, asymptote, and end behavior.

$f(x) = 1.5^x$



$f(x) = \left(\frac{5}{2}\right)^x$



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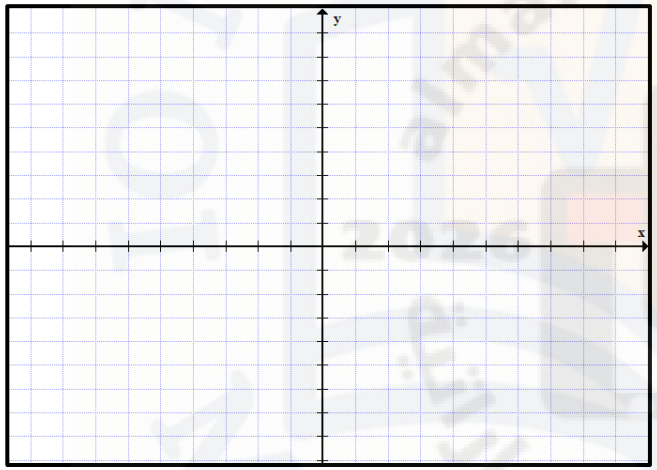
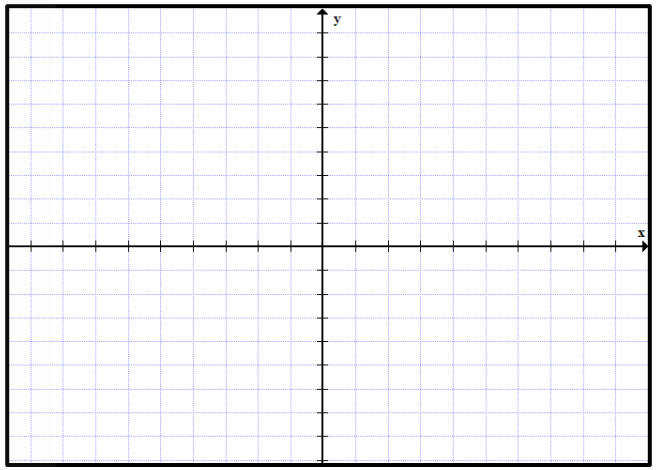
Q 1	Learning Outcome/Performance Criteria**	Lesson 5-1	Exercise	Page
MCQ	Graph exponential growth functions	Graphing Exponential Functions	1-10 1	221 254

Graph each function.

$f(x) = 2(3)^x$



$f(x) = -2(4)^x$



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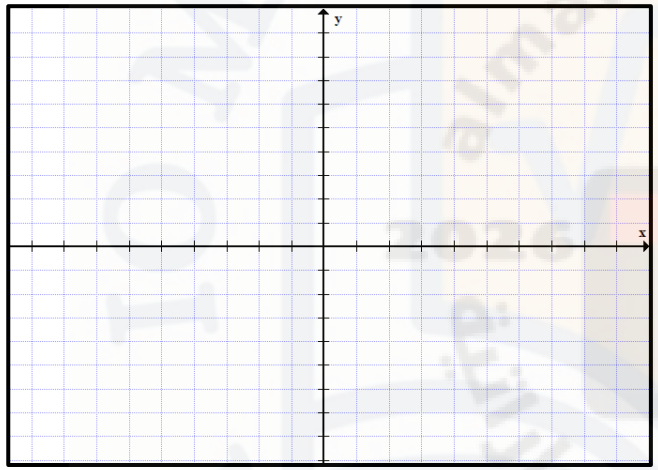
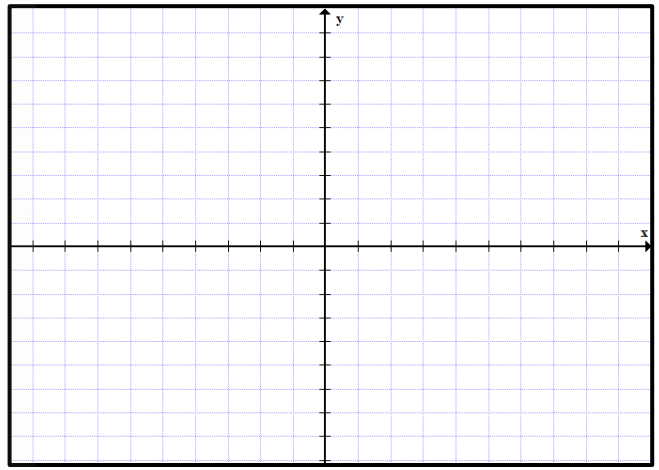
Q 1	Learning Outcome/Performance Criteria**	Lesson 5-1	Exercise	Page
MCQ	Graph exponential growth functions	Graphing Exponential Functions	1-10 1	221 254

Graph each function.

$f(x) = 3^{2x} + 1$



$f(x) = 4^{x+1} - 5$



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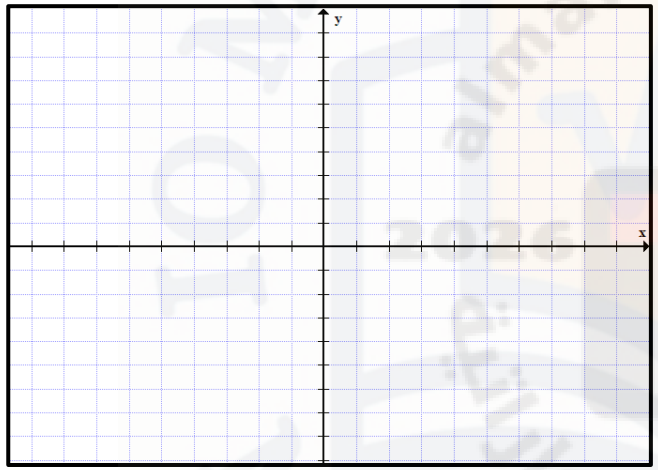
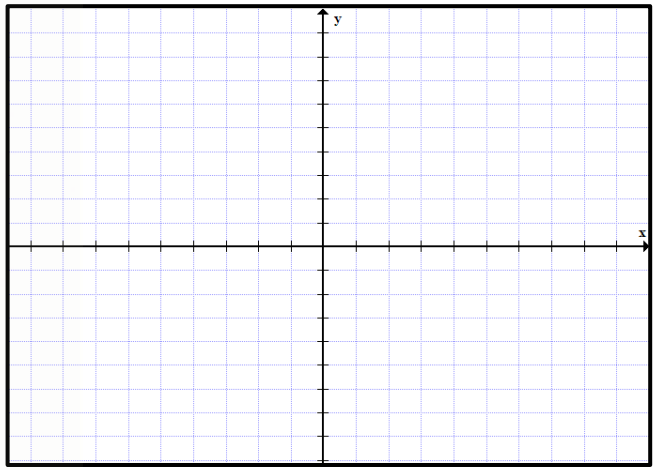
Q 1	Learning Outcome/Performance Criteria**	Lesson 5-1	Exercise	Page
MCQ	Graph exponential growth functions	Graphing Exponential Functions	1-10 1	221 254

Graph each function.

$f(x) = -0.4(3)^{x+2} + 4$



$f(x) = 1.5(2)^{x} + 6$

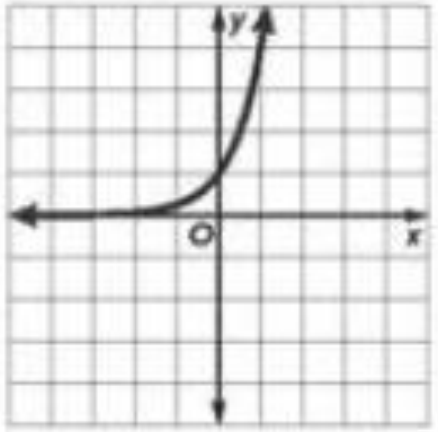


Q 1	Learning Outcome/Performance Criteria**	Lesson 5-1	Exercise	Page
MCQ	Graph exponential growth functions	Graphing Exponential Functions	1-10 1	221 254

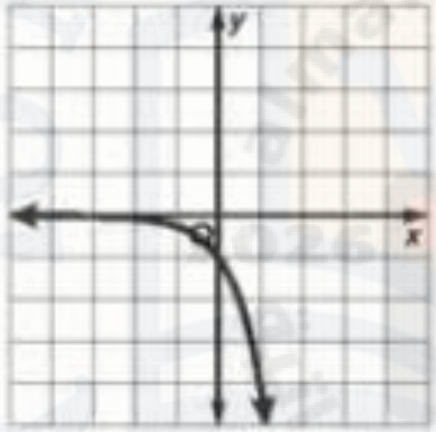
Select the graph of

$$f(x) = 4^x$$

A.

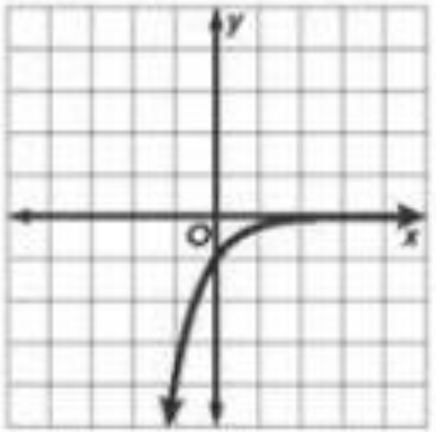


B.



C.

D.



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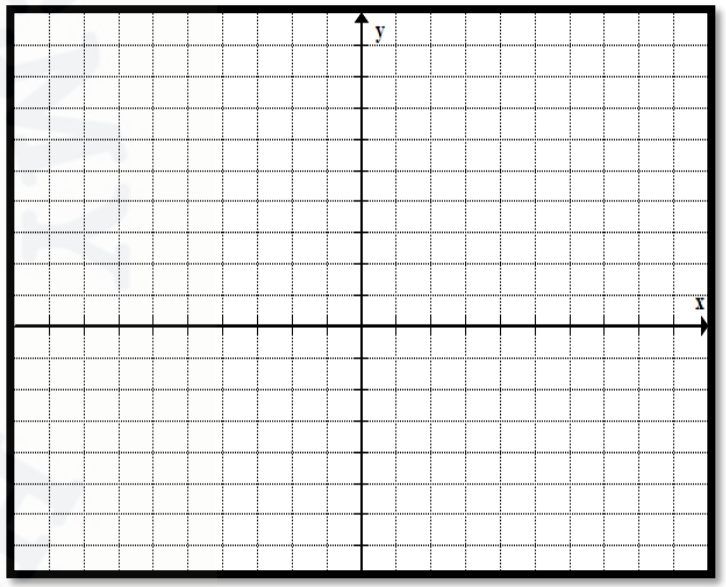
Q 2	Learning Outcome/Performance Criteria**	Lesson 5-3	Exercise	Page
MCQ	Analyze expressions and functions involving the natural base e.	Special Exponential Functions	**Example 2** 10-12	234 237

Consider

$$f(x) = -2\,e^{x-3} + 2$$

Part A Graph the function.



Part B Determine the domain and range.

Part C Find the average rate of change.
Determine the average rate of change of $\boldsymbol{g(x)}$ over each interval.

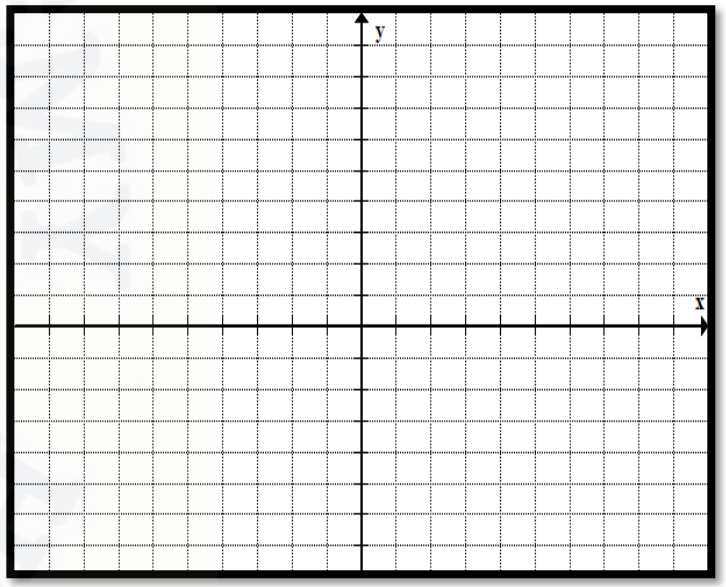
a. [-4, -1] b. [0, 3] c. [4, 8]

Q 2	Learning Outcome/Performance Criteria**	Lesson 5-3	Exercise	Page
MCQ	Analyze expressions and functions involving the natural base e.	Special Exponential Functions	**Example 2** 10-12	234 237

Consider

$$f(x) = 3\,e^{x-1} + 3$$

Part A Graph the function.



Part B Determine the domain and range.

Part C Find the average rate of change.
Determine the average rate of change of $\boldsymbol{g(x)}$ over each interval.

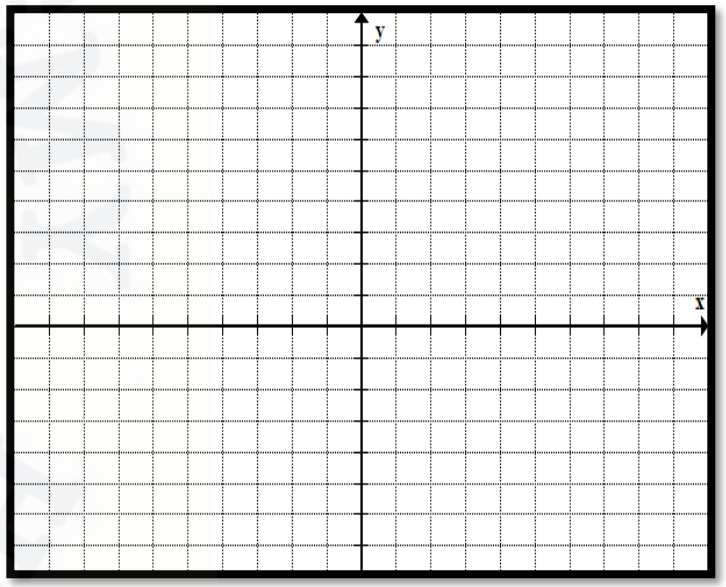
[-5, -2].

Q 2	Learning Outcome/Performance Criteria**	Lesson 5-3	Exercise	Page
MCQ	Analyze expressions and functions involving the natural base e.	Special Exponential Functions	**Example 2** 10-12	234 237

Consider

$$f(x) = 4\,e^{2x-1} - 1$$

Part A Graph the function.



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Determine the average rate of change of $\boldsymbol{g(x)}$ over each interval.

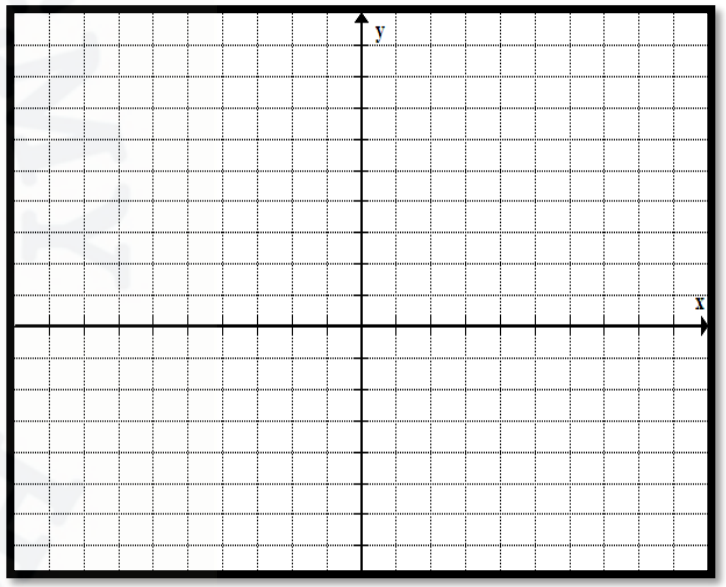
a. [-3, -1]

Q 2	Learning Outcome/Performance Criteria**	Lesson 5-3	Exercise	Page
MCQ	Analyze expressions and functions involving the natural base e.	Special Exponential Functions	**Example 2** 10-12	234 237

Consider

$$f(x) = -2\,e^{x+3} + 2$$

Part A Graph the function.



Part B Determine the domain and range.

Part C Find the average rate of change.
Determine the average rate of change of $\boldsymbol{g(x)}$ over each interval.

a. [-7, -4]

Q 3	Learning Outcome/Performance Criteria**	Lesson 6-1	Exercise	Page
MCQ اختيار من متعدد	Write logarithmic expressions in exponential form and write exponential expressions in logarithmic form	Logarithms and Logarithmic Functions	1-12	265

Write each equation in exponential form.

1) $\log_{15} 225 = 2$

2) $\log_3 \frac{1}{27} = -3$

3) $\log_5 \frac{1}{25} = 2$

4) $\log_3 243 = 5$

5) $\log_4 64 = 3$

5) $\log_4 32 = \frac{5}{2}$

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Q 3	Learning Outcome/Performance Criteria**	Lesson 6-1	Exercise	Page
MCQ	Write logarithmic expressions in exponential form and write exponential expressions in logarithmic form	Logarithms and Logarithmic Functions	1-12	265

Write each equation in logarithmic form.

7) $2^7 = 128$

8) $3^4 = \frac{1}{81}$

9) $7^{-2} = \frac{1}{49}$

10) $\left(\frac{1}{7}\right) = \frac{1}{343}$

11) $2^9 = 512$

12) $64^{\frac{2}{3}} = 16$

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Q 4	Learning Outcome/Performance Criteria**	Lesson 6-1	Exercise	Page
MCQ	Evaluate logarithmic expressions by using the Change of Base Formula.	Logarithms and Logarithmic Functions	**Example 5 (21-26)**	**279 282**

Express logarithm in terms of common logarithms. Then approximate its value to the nearest ten-thousandth.

$\log_2 11$

$\log_8 30$

Q 4	Learning Outcome/Performance Criteria**	Lesson 6-1	Exercise	Page
MCQ	Evaluate logarithmic expressions by using the Change of Base Formula.	Logarithms and Logarithmic Functions	**Example 5 (21-26)**	**279 282**

Express each logarithm in terms of common logarithms. Then approximate its value to the nearest ten-thousandth.

21) $\log_4 22$

22) $\log_{12} 200$

23) $\log_2 50$

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Q 4	Learning Outcome/Performance Criteria**	Lesson 6-1	Exercise	Page
MCQ	Evaluate logarithmic expressions by using the Change of Base Formula.	Logarithms and Logarithmic Functions	**Example 5 (21-26)**	**279 282**

Express each logarithm in terms of common logarithms. Then approximate its value to the nearest ten-thousandth.

24) $\log_8 15$

25) $\log_3 2$

26) $\log_5 0.4$

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Q 5	Learning Outcome/Performance Criteria**	Lesson 6-4	Exercise	Page
MCQ	Simplify expressions with natural logarithms.	Natural Logarithms	**Example 3 (19-27)**	**286 291**

Write each expression as a single logarithm.

$$\frac{1}{3}\ln 8 - \ln 3 + \ln 9$$

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Q 5	Learning Outcome/Performance Criteria**	Lesson 6-4	Exercise	Page
MCQ	Simplify expressions with natural logarithms.	Natural Logarithms	**Example 3 (19-27)**	**286 291**

Write each expression as a single logarithm.

19) $3 \ln 3 - \ln 9$

20) $4\ln 16 - \ln 256$

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Q 5	Learning Outcome/Performance Criteria**	Lesson 6-4	Exercise	Page
MCQ	Simplify expressions with natural logarithms.	Natural Logarithms	**Example 3 (19-27)**	**286 291**

Write each expression as a single logarithm.

21) $2\ln x - 2\ln 4$

22) $3\ln 4 + 3\ln 3$

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Q 5	Learning Outcome/Performance Criteria**	Lesson 6-4	Exercise	Page
MCQ	Simplify expressions with natural logarithms.	Natural Logarithms	**Example 3 (19-27)**	**286 291**

Write each expression as a single logarithm.

23) $\ln 25 - 2\ln 5$

24) $3\ln 10 + 2\ln 100$

Q 5	Learning Outcome/Performance Criteria**	Lesson 6-4	Exercise	Page
MCQ	Simplify expressions with natural logarithms.	Natural Logarithms	**Example 3 (19-27)**	**286 291**

Write each expression as a single logarithm.

25) $4\ln\frac{1}{3} - 6\ln\frac{1}{9}$

26) $7\ln\frac{1}{2} + 5\ln 2$

27) $8\ln x - 4\ln 5$

Q 5	Learning Outcome/Performance Criteria**	Lesson 6-4	Exercise	Page
MCQ	Simplify expressions with natural logarithms.	Natural Logarithms	**Example 3 (19-27)**	**286 291**

Write each expression as a single logarithm.

27) $8\ln x - 4\ln 5$

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Q 6	Learning Outcome/Performance Criteria**	Lesson 6-5	Exercise	Page
MCQ	Simplify expressions with natural logarithms.	Using Exponential and Logarithmic Functions	Example 1,check **(1,2)**	**(295- 297) 301**

Example 1 POPULATION In 2016, the population of Florida was 20.61 million people. In 2000, it was 15.98 million.

Part A Write the equation that models the number of bacteria A cells y after t minutes. Round the value of k to the nearest thousandth.

Part B After how many minutes will there be 1000 bacteria A cells? Round to the nearest tenth if necessary.

Part C Bacteria B grows exponentially according to the model $y = 52e^{0.064t}$. After how many minutes will there be more bacteria A cells than bacteria B cells? Round to the nearest tenth if necessary.

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Q 6	Learning Outcome/Performance Criteria**	Lesson 6-5	Exercise	Page
MCQ	Simplify expressions with natural logarithms.	Using Exponential and Logarithmic Functions	Example 1,check **(1,2)**	**(295- 297) 301**

Check SCIENCE An experiment starts with 20 bacteria A cells. After 45 minutes, there are 710 bacteria A cells.

Part A Write an exponential growth equation.

Part B Predict when the population will reach 25 million people.

Part C Compare the populations of Florida and California.

Q 6	Learning Outcome/Performance Criteria**	Lesson 6-5	Exercise	Page
MCQ	Simplify expressions with natural logarithms.	Using Exponential and Logarithmic Functions	Example 1,check **(1,2)**	**(295- 297) 301**

1. POPULATION In **2000**, the world population was estimated to be **6.124** billion people. In **2005**, it was **6.515 billion**.

a. Write an exponential growth equation to represent the population y in billions t years after **2000**.

b. Use the equation to predict the year in which the world population reached **7.5 billion** people.

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Q 6	Learning Outcome/Performance Criteria**	Lesson 6-5	Exercise	Page
MCQ	Simplify expressions with natural logarithms.	Using Exponential and Logarithmic Functions	Example 1,check **(1,2)**	**(295- 297) 301**

2. CONSUMER AWARENESS Jason wants to buy a new HD television, but he thinks that if he waits, the quality of HD televisions will improve. The television he wants to buy costs **$2500** now, and based on pricing trends, Jason thinks that the price will increase by **4%** each year.

a. Write an exponential growth equation to represent the price y of a new HD television t years from now.

b. Use the equation to predict when a new HD television will cost **$3000**.

c. Jason decides to wait to buy a new television and saves his money. He puts $2200 in a savings account with **4.7%** annual interest compounded continuously. Determine when the amount in his savings will exceed the cost of a new television.

Q 7	Learning Outcome/Performance Criteria**	Lesson 7-1	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions.**	Multiplying and Dividing Rational Expressions	**(1-10)**	315

Simplify each expression, and state when the original expression is undefined.

1) $\dfrac{x(x-3)(x+6)}{x^2+x-12}$

2) $\dfrac{y^2(y^2+3y+2)}{2y(y-4)(y+2)}$

Q 7	Learning Outcome/Performance Criteria**	Lesson 7-1	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions.**	Multiplying and Dividing Rational Expressions	**(1-10)**	315

Simplify each expression, and state when the original expression is undefined.

3) $\dfrac{(x^2-9)(x^2+z^2)}{4(x+z)(x-3)}$

4) $\dfrac{(x^2-16x+64)(x+2)}{(x^2-64)(x^2-6x-16)}$

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Q 7	Learning Outcome/Performance Criteria**	Lesson 7-1	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions.**	Multiplying and Dividing Rational Expressions	**(1-10)**	315

Simplify each expression, and state when the original expression is undefined.

5) $\dfrac{x^2(x+2)(x-4)}{6x(x^2+x-20)}$

6) $\dfrac{3y(y-8)(y^2+2y-24)}{15y^2(y^2-12y+32)}$

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Q 7	Learning Outcome/Performance Criteria**	Lesson 7-1	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions.**	Multiplying and Dividing Rational Expressions	**(1-10)**	315

Simplify each expression

7) $\dfrac{x^2-5x-14}{28+3x-x^2}$

8) $\dfrac{9x^2-x^3}{x^2-3x-54}$

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Q 7	Learning Outcome/Performance Criteria**	Lesson 7-1	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions.**	Multiplying and Dividing Rational Expressions	**(1-10)**	315

Simplify each expression

9) $\dfrac{(x-4)(x^2+2x-48)}{(36-x^2)(x^2+4x-32)}$

10) $\dfrac{16-c^2}{c^2+c-20}$

Q 8	Learning Outcome/Performance Criteria**	Lesson 7-2	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions by adding and subtracting.**	Adding and Subtracting Rational Expressions	**(1-12)**	**323**

Simplify each expression

1) $\frac{3}{x}+\frac{5}{y}$

2) $\frac{3}{8p^2r}+\frac{5}{4p^2r}$

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Q 8	Learning Outcome/Performance Criteria**	Lesson 7-2	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions by adding and subtracting.**	Adding and Subtracting Rational Expressions	**(1-12)**	**323**

Simplify each expression

3) $\frac{2c-7}{3}+4$

4) $\frac{2}{m^2p}+\frac{5}{p}$

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Q 8	Learning Outcome/Performance Criteria**	Lesson 7-2	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions by adding and subtracting.**	Adding and Subtracting Rational Expressions	**(1-12)**	**323**

Simplify each expression

5) $\frac{12}{5y^2} - \frac{2}{5yz}$

6) $\frac{7}{4gh} + \frac{3}{4h^2}$

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Q 8	Learning Outcome/Performance Criteria**	Lesson 7-2	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions by adding and subtracting.**	Adding and Subtracting Rational Expressions	**(1-12)**	**323**

Simplify each expression

7) $\frac{3}{w-3} - \frac{2}{w^2-9}$

8) $\frac{3t}{2-x} + \frac{5}{x-2}$

Q 8	Learning Outcome/Performance Criteria**	Lesson 7-2	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions by adding and subtracting.**	Adding and Subtracting Rational Expressions	**(1-12)**	**323**

Simplify each expression

9) $\frac{k}{k-n} - \frac{k}{n-k}$

10) $\frac{4z}{z-4} + \frac{z+4}{z+1}$

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Q 8	Learning Outcome/Performance Criteria**	Lesson 7-2	Exercise	Page
MCQ اختيار من متعدد	**Simplify rational expressions by adding and subtracting.**	Adding and Subtracting Rational Expressions	**(1-12)**	**323**

Simplify each expression

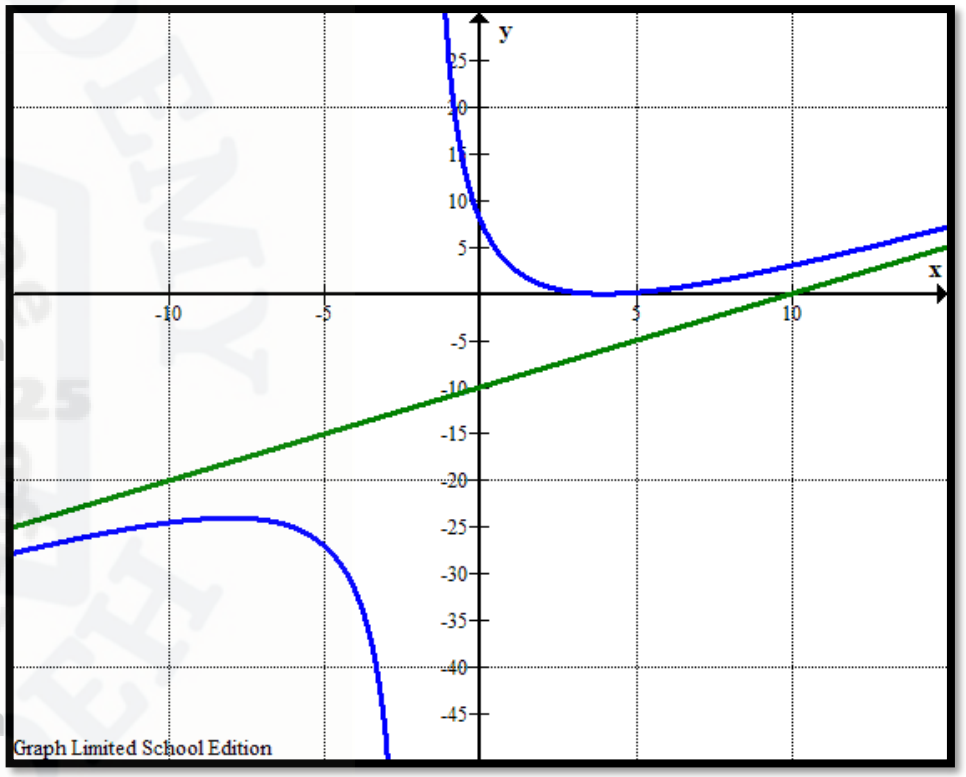
11) $\frac{n}{n-3} - \frac{2n+2}{n^2-2n-3}$

12) $\frac{3}{y^2+y-12} - \frac{2}{y^2+6y+8}$

Q 9	Learning Outcome/Performance Criteria**	Lesson 7-4	Exercise	Page
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Find the zeros and asymptotes of each function. Then graph each function.

11. $f(x) = \dfrac{(x-4)^2}{x+2}$



Zeros

Vertical asymptote

Horizontal asymptote

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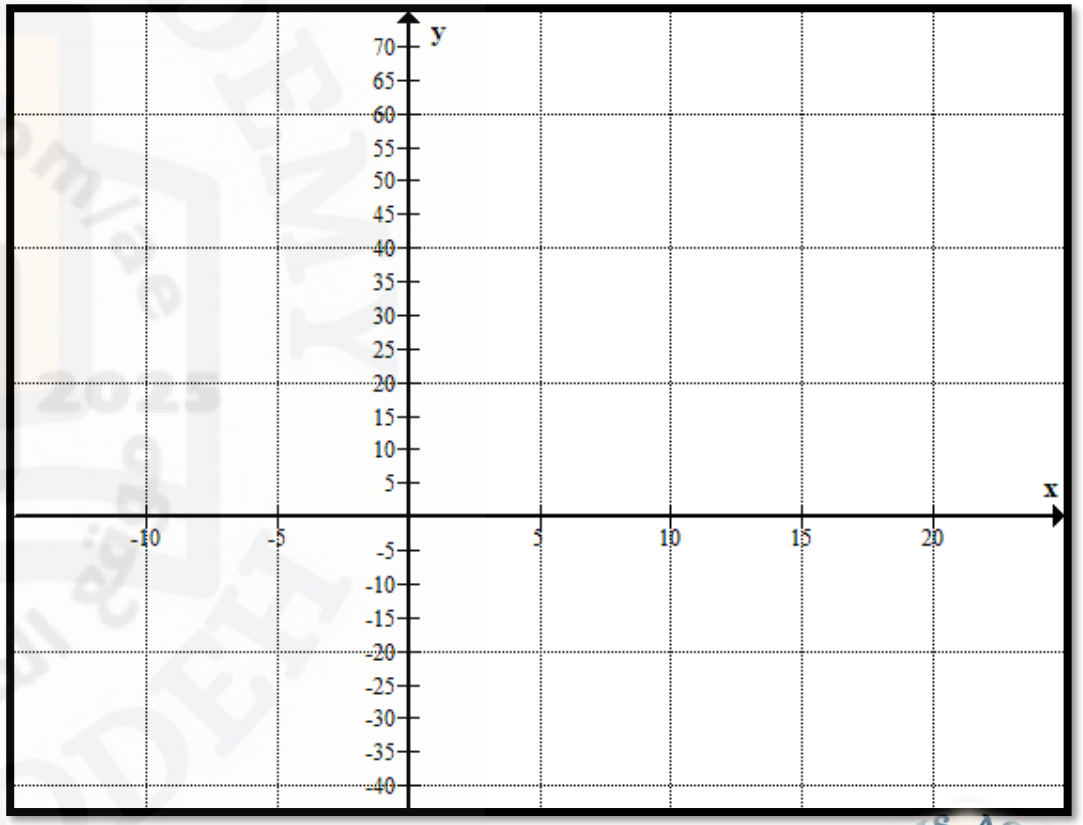
Q 9	Learning Outcome/Performance Criteria**	Lesson 7-4	Exercise	Page
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Find the zeros and asymptotes of each function. Then graph each function.

12. $f(x) = \dfrac{(x+3)^2}{x-5}$



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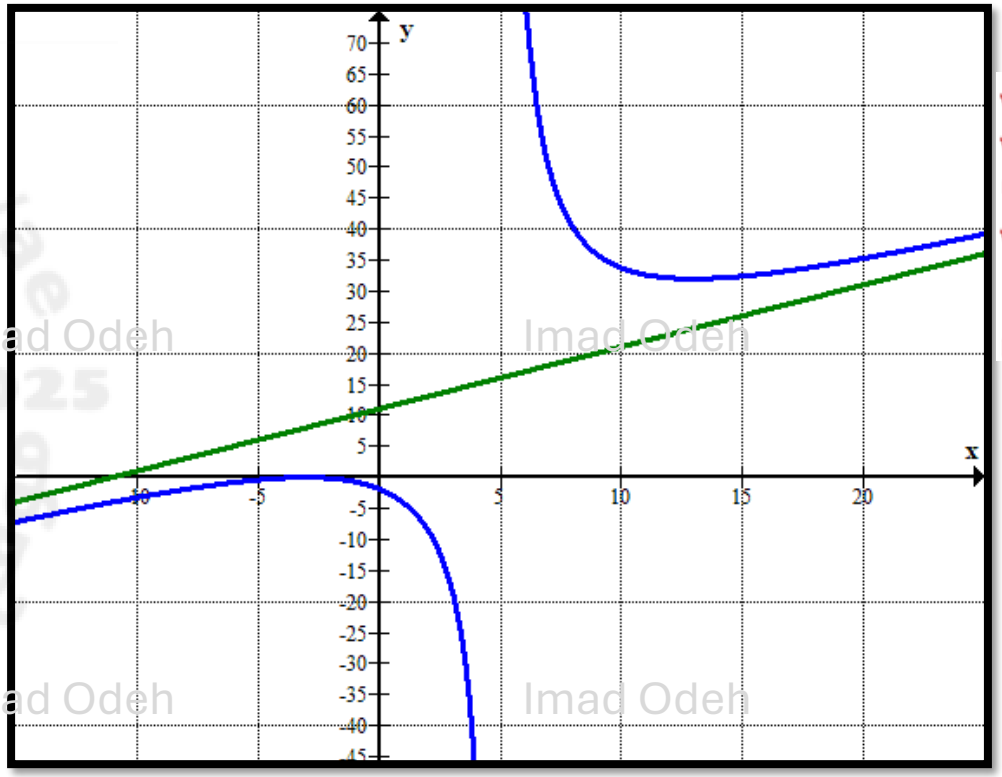

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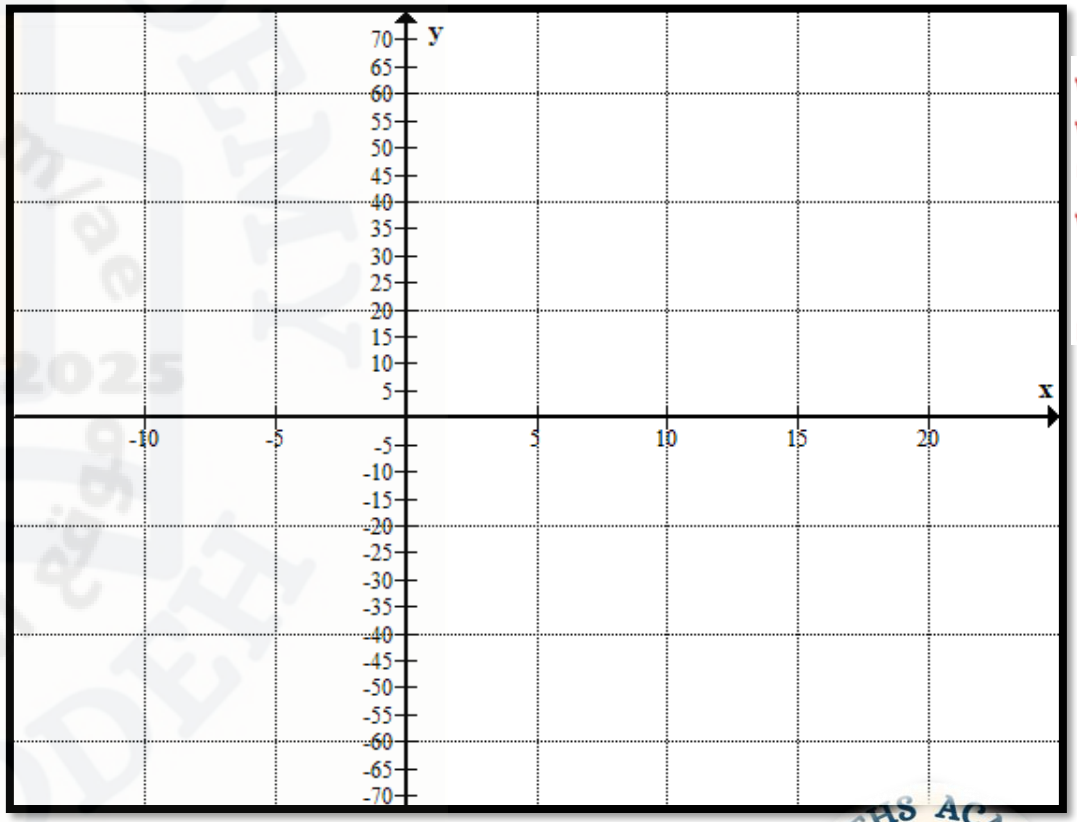
Q 3	Learning Outcome/Performance Criteria**	Lesson 7-4	Exercise	Page
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Find the zeros and asymptotes of each function. Then graph each function.

13. $f(x) = \dfrac{6x^2 + 4x + 2}{x + 2}$



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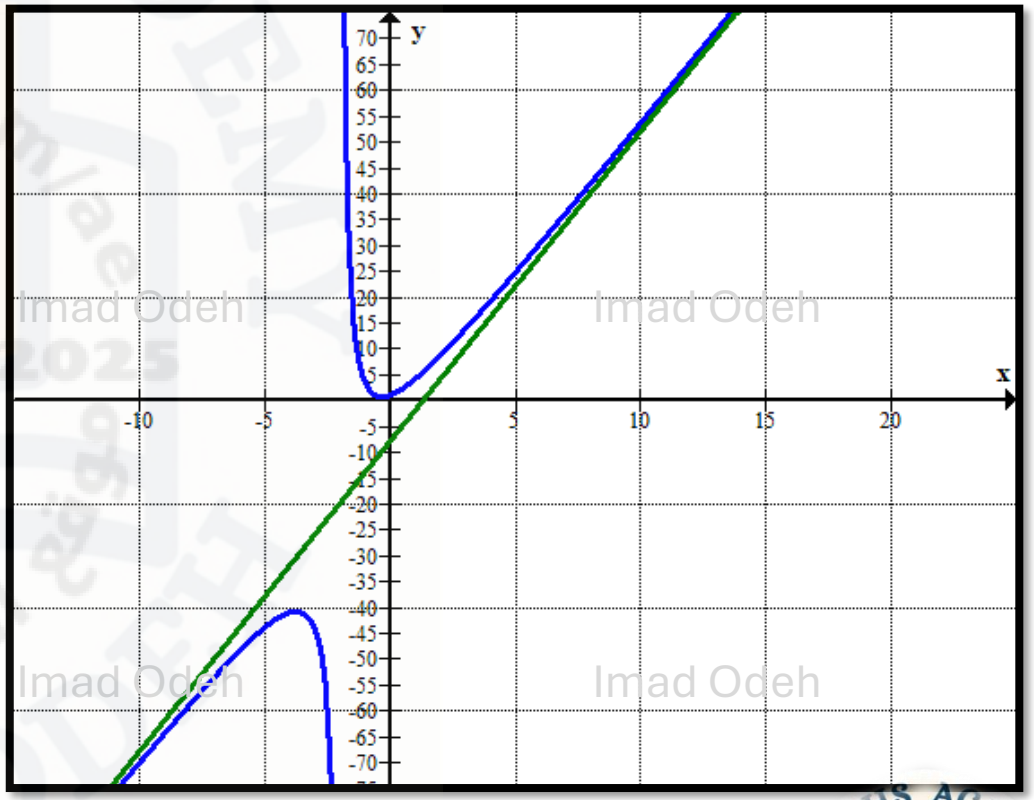

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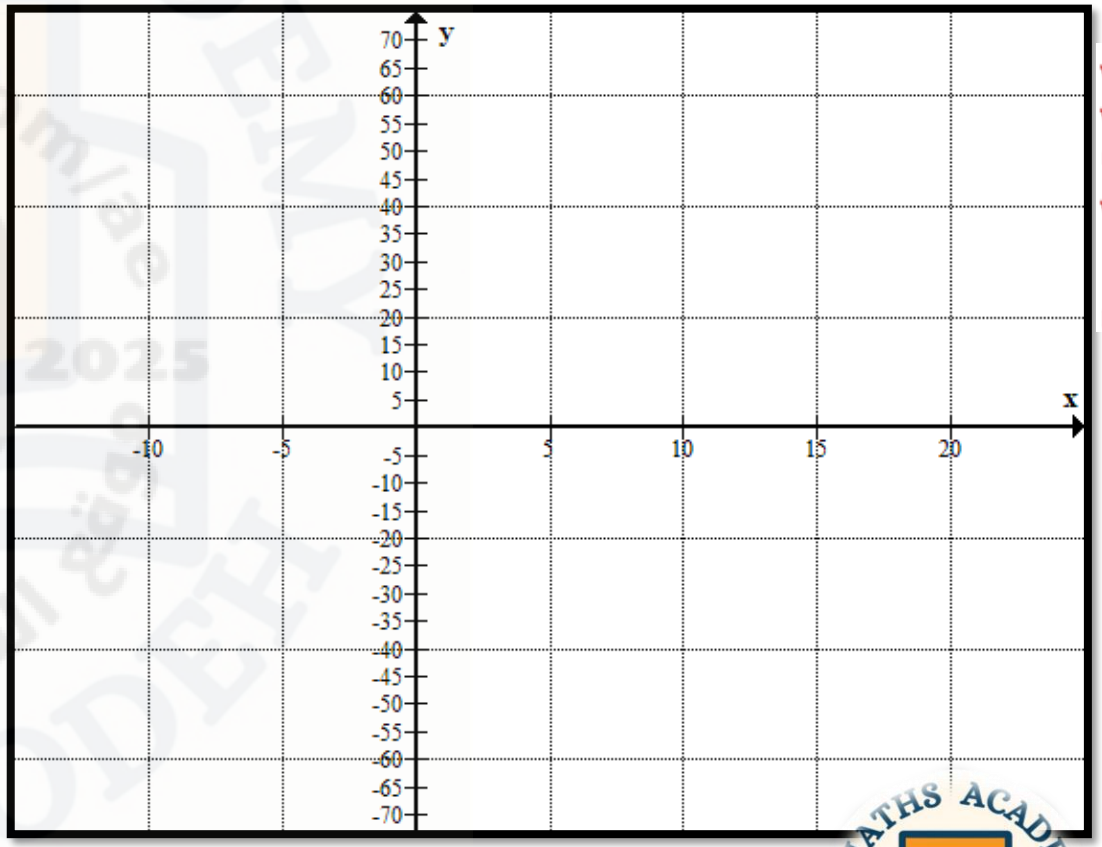
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Find the zeros and asymptotes of each function. Then graph each function.

14. $f(x) = \dfrac{2x^2 + 7x}{x - 2}$



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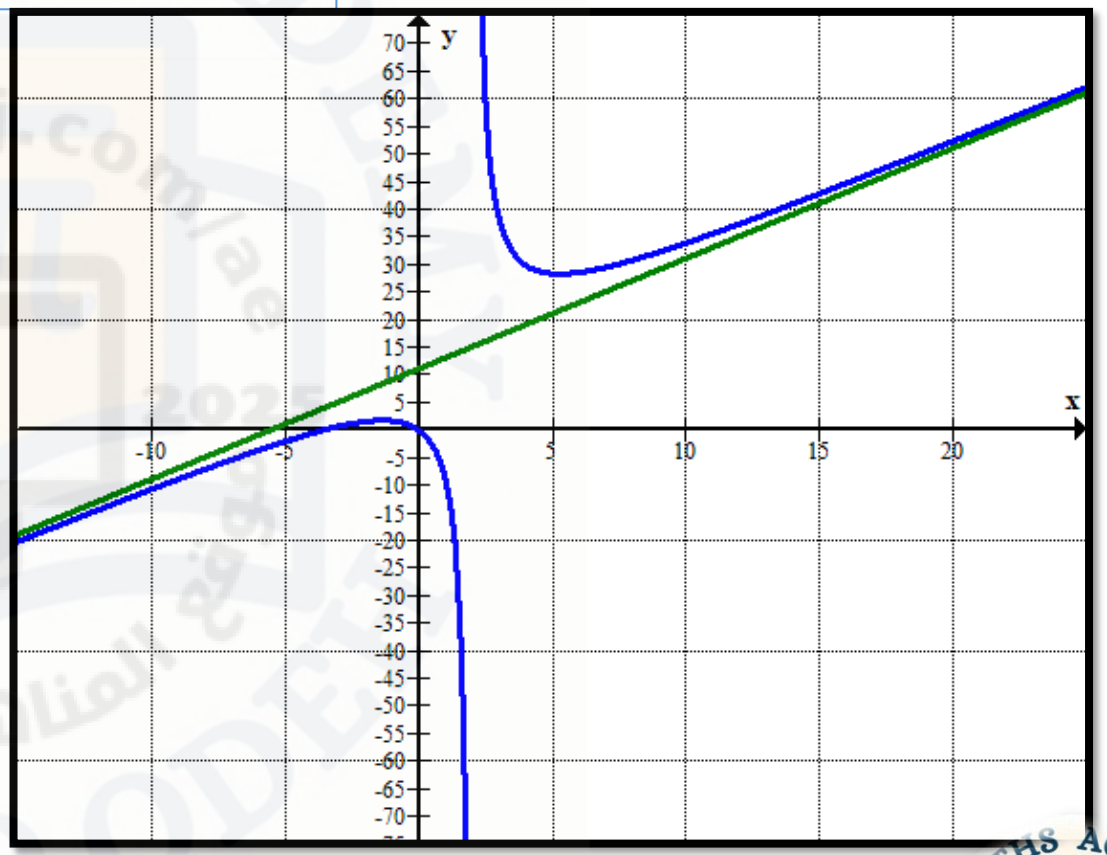
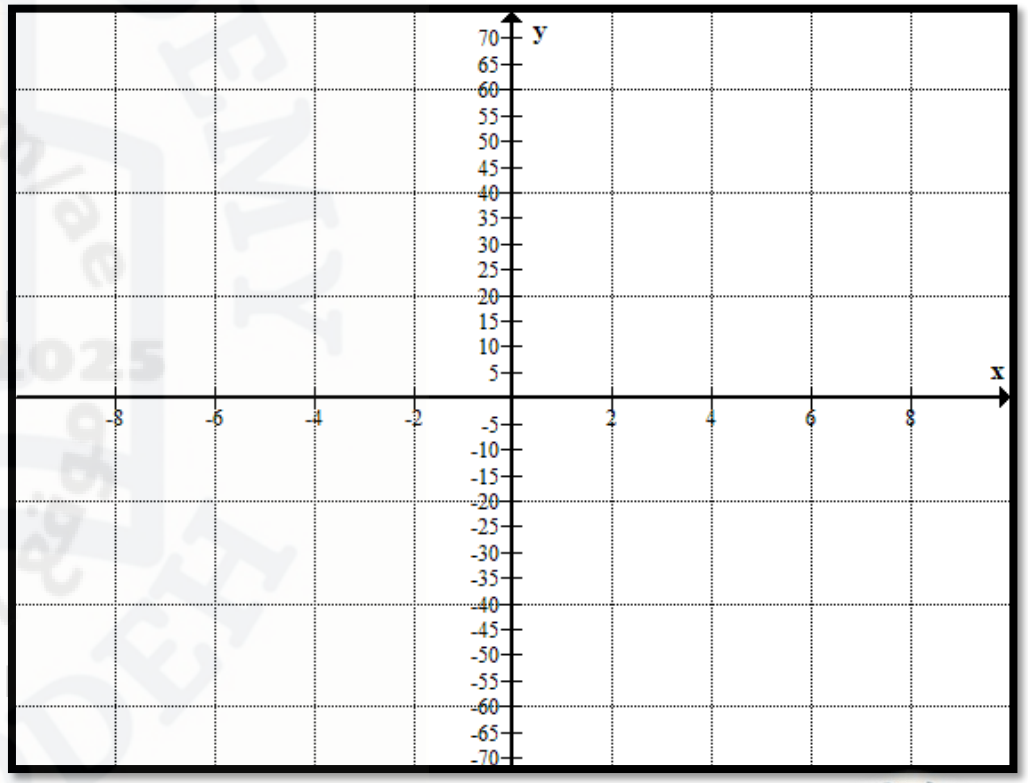


Q 3	Learning Outcome/Performance Criteria**	Lesson 7-4	Exercise	Page
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Find the zeros and asymptotes of each function. Then graph each function.

15. $f(x) = \dfrac{3x^2 + 8}{2x - 1}$



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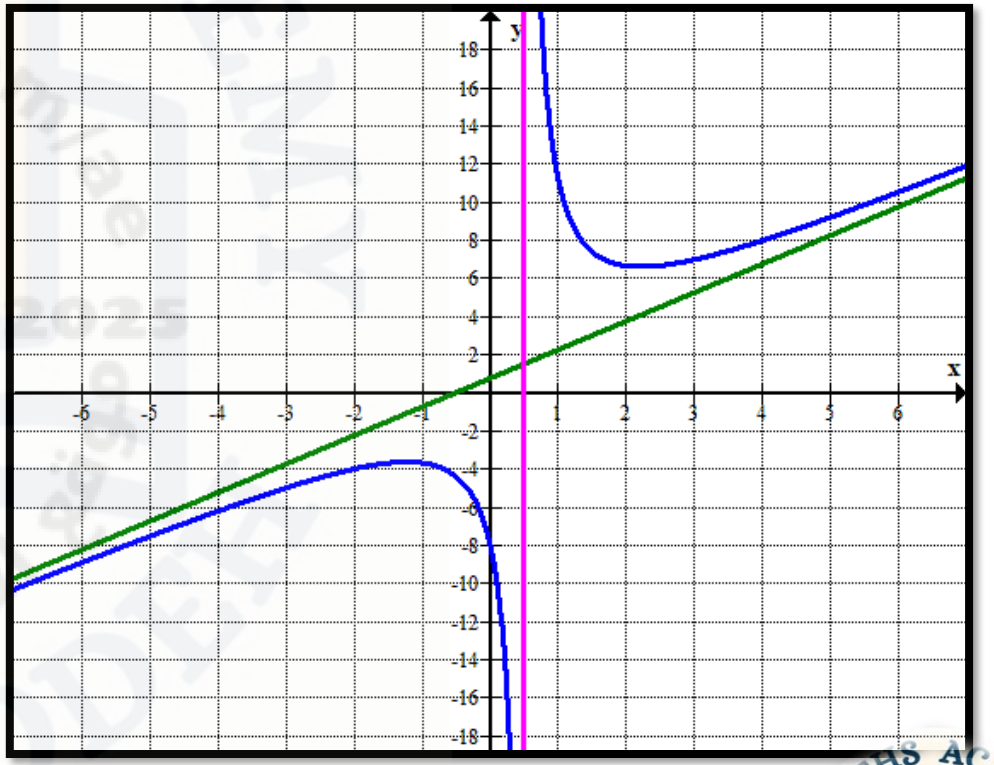
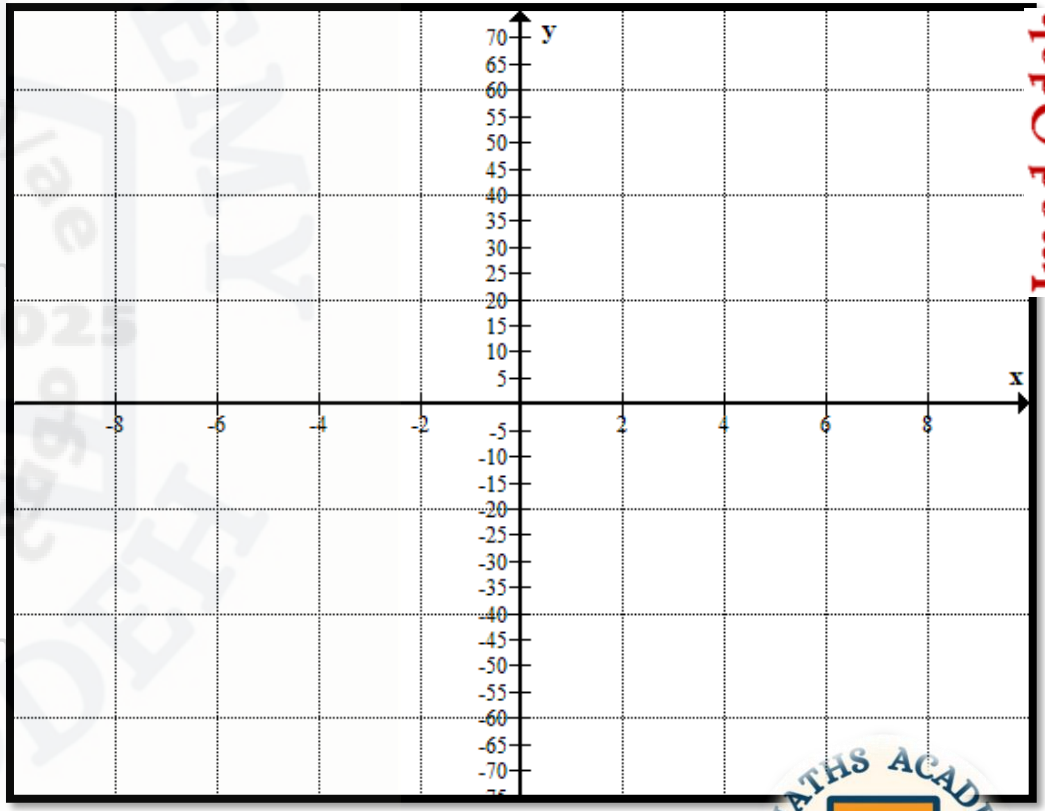


Q 9	Learning Outcome/Performance Criteria**	Lesson 7-4	Exercise	Page
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Find the zeros and asymptotes of each function. Then graph each function.

16. $f(x) = \dfrac{2x^2 + 5}{3x + 4}$



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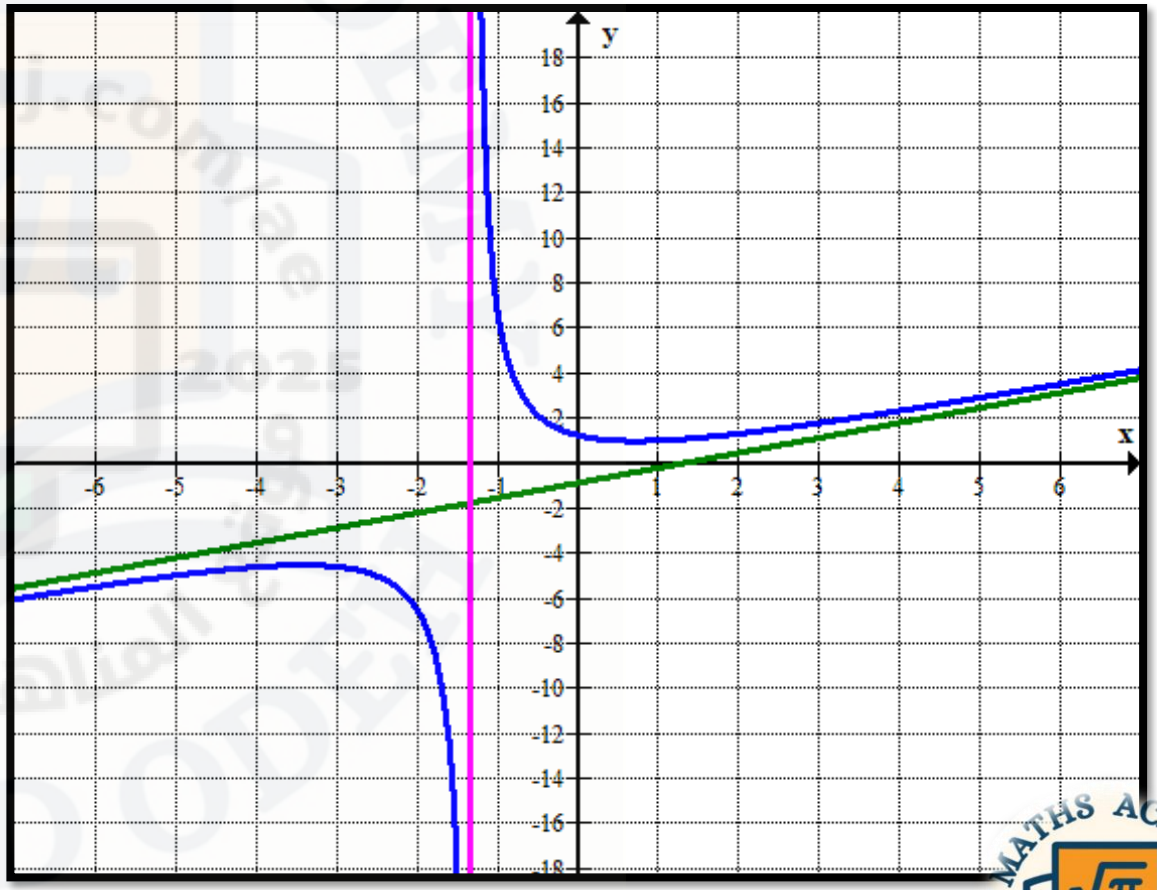

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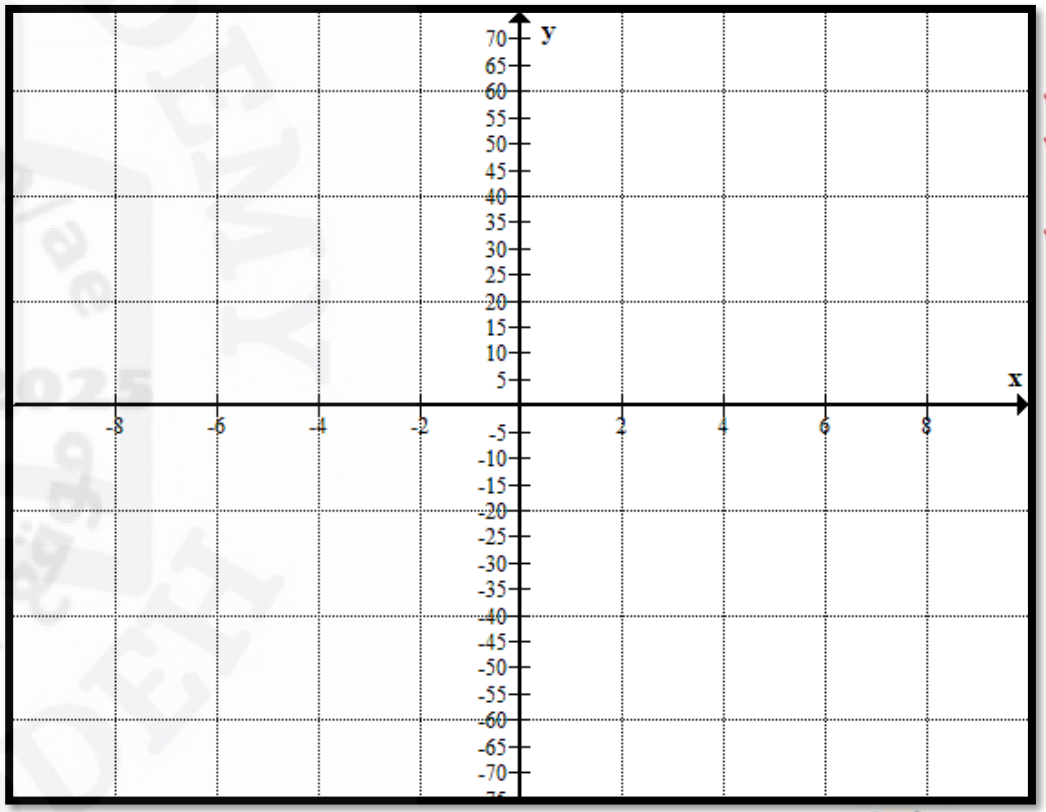
Q 9	Learning Outcome/Performance Criteria**	Lesson 7-4	Exercise	Page
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Graph each function. Find the point discontinuity.

17. $f(x) = \dfrac{x^2 - 2x - 8}{x - 4}$



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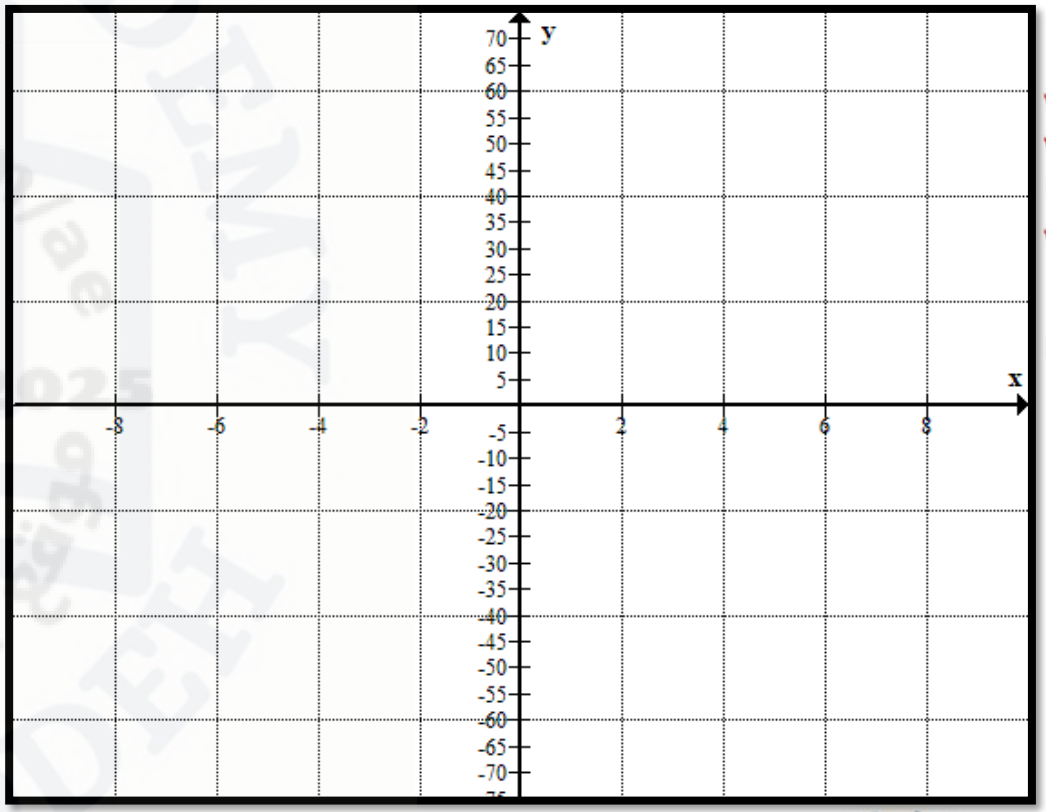
Q 3	Learning Outcome/Performance Criteria**	Lesson 7-4	Exercise	Page
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Graph each function. Find the point discontinuity.

18. $f(x) = \dfrac{x^2 + 4x - 12}{x - 2}$



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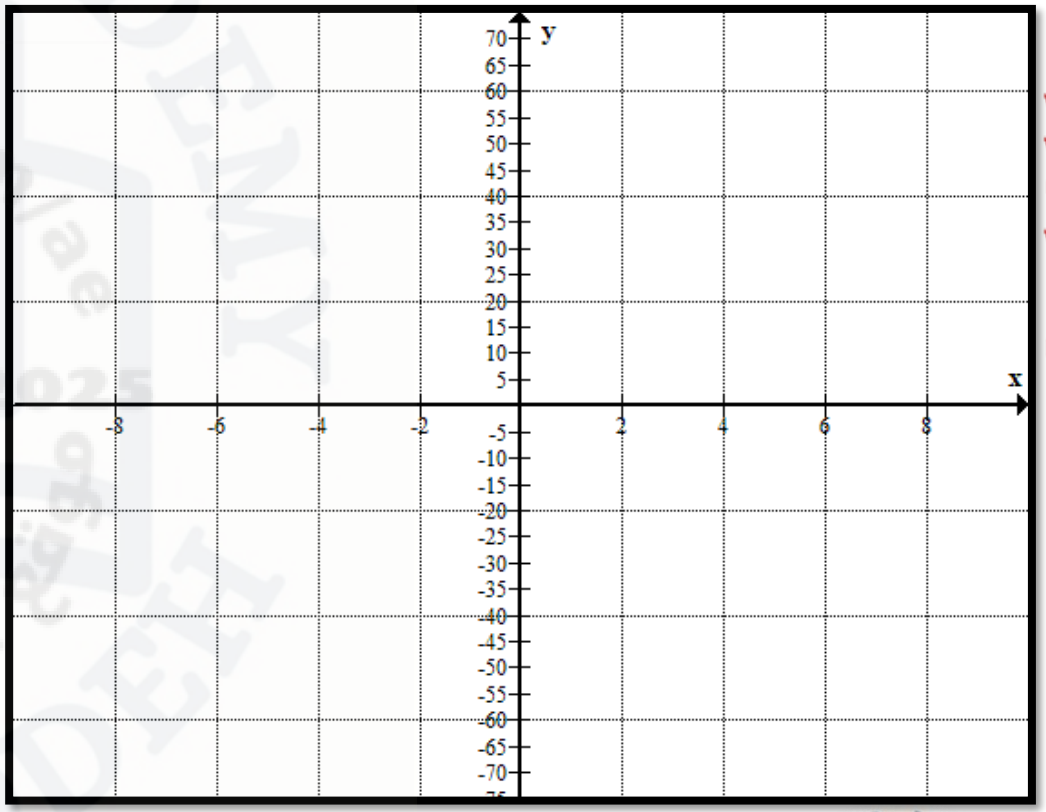
Q 9	Learning Outcome/Performance Criteria**	Lesson 7-4	Exercise	Page
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Graph each function. Find the point discontinuity.

19. $f(x) = \dfrac{x^2 - 25}{x + 5}$



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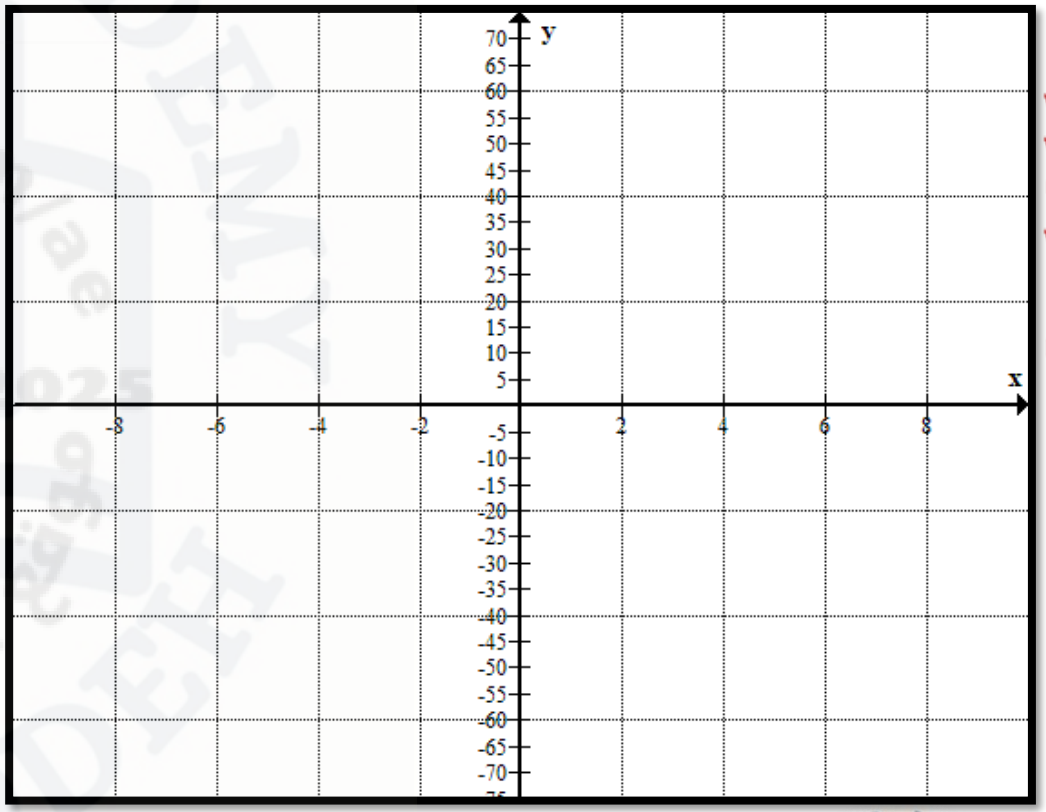
Q 9	Learning Outcome/Performance Criteria**	Lesson 7-4	Exercise	Page
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Graph each function. Find the point discontinuity.

20. $f(x) = \dfrac{x^2 - 64}{x - 8}$



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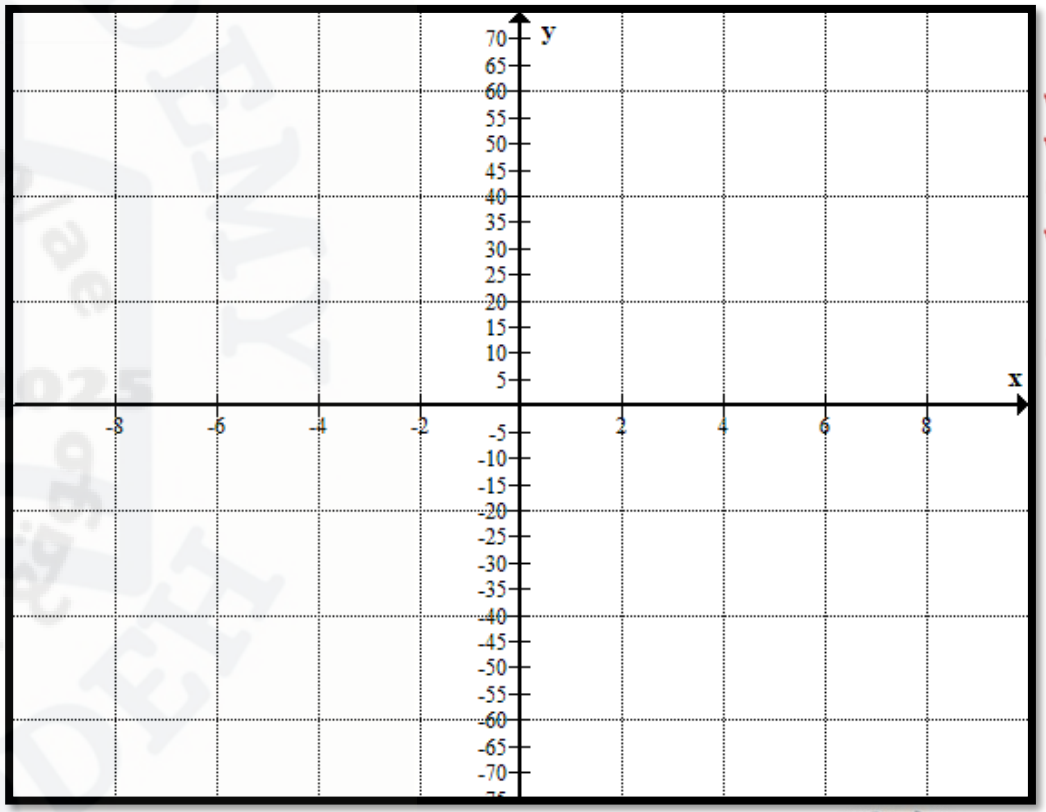
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Graph each function. Find the point discontinuity.

21. $f(x) = \dfrac{(x-4)(x^2-4)}{x^2-6x+8}$



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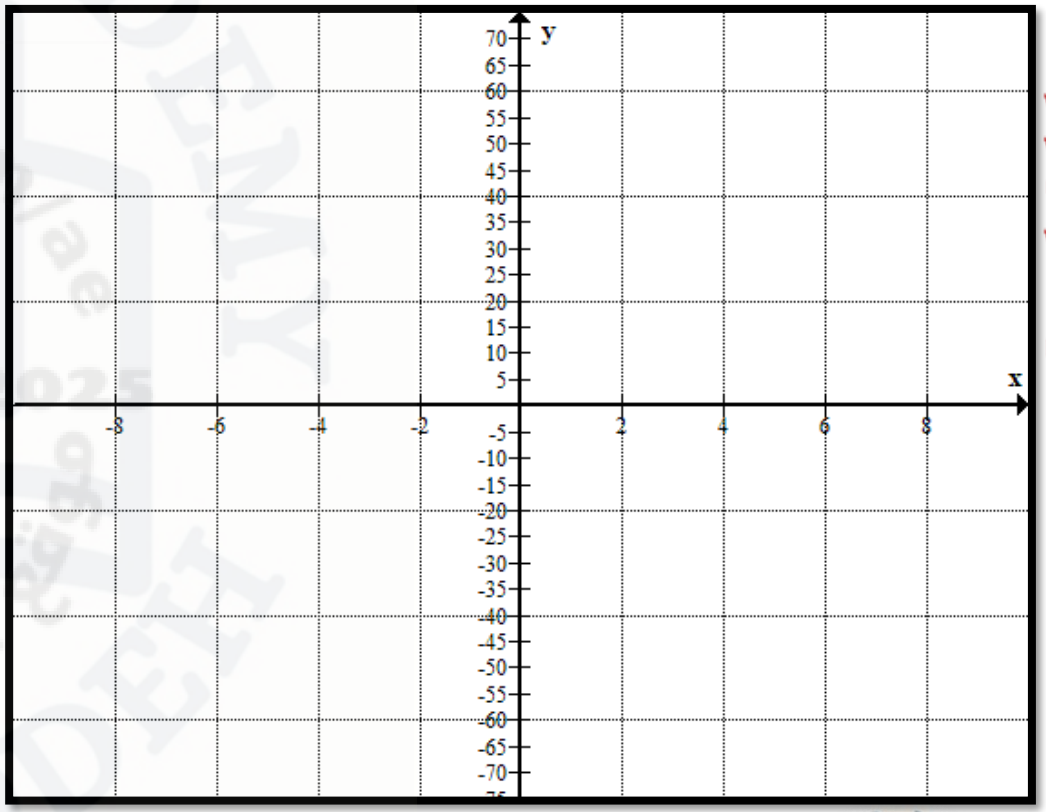
FRQ كتابي	Graph rational functions with oblique asymptotes and point discontinuity	Graphing Rational Functions	11-16	344

Graph each function. Find the point discontinuity.

22. $f(x) = \dfrac{(x + 5)(x^2 + 2x - 3)}{x^2 + 8x + 15}$



Q 10	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Recognize and solve direct and joint variation equations.**	Variation	**(7-12)**	351

If a varies jointly as b and c, find a when b = 4 and c = −3.

7. $a = -96$ when $b = 3$ and $c = -8$

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Q 10	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Recognize and solve direct and joint variation equations.**	Variation	**(7-12)**	351

If a varies jointly as b and c, find a when b = 4 and c = −3.

9. a = −108 when b = 2 and c = 9

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Q 10	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Recognize and solve direct and joint variation equations.**	Variation	**(7-12)**	351

If a varies jointly as b and c, find a when b = 4 and c = −3.

10. a = 24 when b = 8 and c = 12

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Q 10	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Recognize and solve direct and joint variation equations.**	Variation	**(7-12)**	351

If a varies jointly as b and c, find a when b = 4 and c = −3.

11. If y varies jointly as x and z, and y = 18 when x = 2 and z = 3, find y when x is 5 and z is 6.

Imad Odeh

Q 10	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Recognize and solve direct and joint variation equations.**	Variation	**(7-12)**	351

If a varies jointly as b and c, find a when b = 4 and c = −3.

12. If y varies jointly as x and z, and y = −16 when x = 4 and z = 2, find y when x is −1 and z is 7.

Imad Odeh

Q 11	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Solve rational equations in one variable.**	Variation	**(1-12)**	361

Solve each equation. Check your solutions.

1) $\frac{2x+3}{x+1} = \frac{3}{2}$

2) $-\frac{12}{y} = y - 7$

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Q 11	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Solve rational equations in one variable.**	Variation	**(1-12)**	361

Solve each equation. Check your solutions.

3) $\frac{9}{x-7} - \frac{7}{x-6} = \frac{13}{x^2-13x+42}$

4) $\frac{13}{y+3} - \frac{12}{y+4} = \frac{18}{y^2+7y+12}$

Q 11	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Solve rational equations in one variable.**	Variation	**(1-12)**	361

Solve each equation. Check your solutions.

5) $\frac{14}{x-2} - \frac{18}{x+1} = \frac{22}{x^2-x-2}$

6) $\frac{2}{a+2} + \frac{10}{a+5} = \frac{36}{a^2+7a+10}$

Q 11	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Solve rational equations in one variable.**	Variation	**(1-12)**	361

Solve each equation. Check your solutions.

7) $\frac{x}{2x-1}+\frac{3}{x+4}=\frac{21}{2x^2+7x-4}$

8) $\frac{2}{y-5}+\frac{y-1}{2y+1}=\frac{2}{2y^2-9y-5}$

Q 11	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Solve rational equations in one variable.**	Variation	**(1-12)**	361

Solve each equation. Check your solutions.

9) $\frac{x-8}{2x+2}+\frac{x}{2x+2}=\frac{2x-3}{x+1}$

10) $\frac{12p+19}{p^2+7p+12}-\frac{3}{p+3}=\frac{5}{p+4}$

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Q 11	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي	**Solve rational equations in one variable.**	Variation	**(1-12)**	361

Solve each equation. Check your solutions.

11) $\frac{2f}{f^2-4}+\frac{1}{f-2}=\frac{2}{f+2}$

12) $\frac{8}{t^2-9}+\frac{4}{t+3}=1$

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Q12	Learning Outcome/Performance Criteria**	Lesson 8-1	Exercise	Page
MCQ اختيار من متعدد	Classify and analyze samples	Random Sampling	4-10	375

Identify each sample or question as biased or unbiased. Explain your reasoning.

4. A random sample of eight people is asked to select their favorite food for a survey about Americans' food preferences.

5. Every tenth student at band camp is asked to name his or her favorite band for a survey about the campers.

6. Every fifth person entering a museum is asked to name his or her favorite type of book to read for a survey about reading interests of people in the city.

Q12	Learning Outcome/Performance Criteria**	Lesson 8-1	Exercise	Page
MCQ اختيار من متعدد	Classify and analyze samples	Random Sampling	4-10	375

Identify each sample or question as biased or unbiased. Explain your reasoning.

7. Do you think that the workout facility needs a new treadmill and racquetball court?

8. Which is your favorite type of music, pop, or country?

9. Are you a member of any after-school clubs?

10. Don’t you agree that employees should pack their lunch?

Q13	Learning Outcome/Performance Criteria**	Lesson 8-2	Exercise	Page
MCQ اختيار من متعدد	Find and compare experimental and theoretical probabilities	Using Statistical Experiments	1-3	383 412

1. A student spun a spinner with 4 equal sections 100 times and recorded the results.

Spinner Section	Frequency
Red	35
Blue	38
Green	13
Yellow	14

a. Find the theoretical probability of spinning blue. Write your answer as a percentage rounded to the nearest tenth, if necessary.

b. Find the experimental probability of spinning blue. Write your answer as a percentage rounded to the nearest tenth, if necessary.

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Q13	Learning Outcome/Performance Criteria**	Lesson 8-2	Exercise	Page
MCQ اختيار من متعدد	Find and compare experimental and theoretical probabilities	Using Statistical Experiments	1-3	383 412

2. A student flipped a coin 125 times and recorded the results.

Coin Result	Frequency
Heads	73
Tails	52

a. Find the theoretical probability of the coin landing on heads. Write your answer as a percentage rounded to the nearest tenth, if necessary.

b. Find the experimental probability of the coin landing on heads. Write your answer as a percentage rounded to the nearest tenth, if necessary.

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Q13	Learning Outcome/Performance Criteria**	Lesson 8-2	Exercise	Page
MCQ اختيار من متعدد	Find and compare experimental and theoretical probabilities	Using Statistical Experiments	1-3 4	383 412

3. A fair 6-sided die is rolled 150 times.

a. Find the theoretical probability of rolling a 3. Write your answer as a percentage rounded to the nearest tenth, if necessary.

b. Find the experimental probability of rolling a 3. Write your answer as a percentage rounded to the nearest tenth, if necessary.

Number on Die	Frequency
1	32
2	18
3	27
4	16
5	33
6	24

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Q13	Learning Outcome/Performance Criteria**	Lesson 8-2	Exercise	Page
MCQ اختيار من متعدد	Find and compare experimental and theoretical probabilities	Using Statistical Experiments	1-3 4	383 412

4. Leonard randomly selected a card from a standard deck of playing cards, recorded the suit, and returned the card. He followed this set of steps 120 times. The results are shown.

Which statement about the results is true?

Suit	Frequency
Heart	28
Diamond	37
Spade	34
Club	21

A. The theoretical probability of selecting a heart is less than the experimental probability of selecting a heart.

B. The theoretical probability of selecting a diamond is less than the experimental probability of selecting a diamond.

C. The experimental probability of selecting a club is greater than the theoretical probability of selecting a club.

D. The experimental probability of selecting a heart is equal to the experimental probability of selecting a diamond.

Q14	Learning Outcome/Performance Criteria**	Lesson 8-3	Exercise	Page
MCQ اختيار من متعدد	Describe distributions by finding their mean and standard deviation.	Analyzing Population Data	**Example 1 &7** 1-3	388-391 413

Example 1 TRACK A coach recorded the times of each track member for a 400-meter race. Find and interpret the standard deviation of the data.

400m Race Times (seconds)	
57.1	55.9
59.3	54.9
54.6	50.3
55.2	53.5

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Q14	Learning Outcome/Performance Criteria**	Lesson 8-3	Exercise	Page
MCQ اختيار من متعدد	Describe distributions by finding their mean and standard deviation.	Analyzing Population Data	**Example 1 &7** 1-3	388-391 413

1. BARBER A barber wants to purchase new professional shears from a Web site. The prices of all of the shears are shown in the table. Use the standard deviation formula to find and interpret the standard deviation of the data. Round your answers to the nearest cent.

Cost of Shears ($)			
50	165	55	79
84	68	38	42

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Q14	Learning Outcome/Performance Criteria**	Lesson 8-3	Exercise	Page
MCQ اختيار من متعدد	Describe distributions by finding their mean and standard deviation.	Analyzing Population Data	**Example 1 &7** 1-3	388-391 413

2. READING Ms. Sanchez keeps track of the total number of books each student in the book club reads during the school year. Use the standard deviation formula to find and interpret the standard deviation of the data. Round your answers to the nearest tenth.

Books Read		
9	6	12
8	9	14
10	13	8

Q14	Learning Outcome/Performance Criteria**	Lesson 8-3	Exercise	Page
MCQ اختيار من متعدد	Describe distributions by finding their mean and standard deviation.	Analyzing Population Data	**Example 1 &1-3 7**	388-391 413

7. Zain is analyzing two sets of data

Set A				
35	28	35	33	32
32	31	30	36	49
36	33	29	34	37

Set B				
22	26	26	24	27
38	35	31	22	30
24	33	30	25	38

Select all the true statements about each data set.

A. Data set A has a higher average value.

B. Data set B has a higher average value.

C. Data set A is more varied.

D. Data set B is more varied.

Q15	Learning Outcome/Performance Criteria**	Lesson 9-1	Exercise	Page
FRQ	Convert degree measures of angles to radian measures and vice versa and apply to finding arc length	Angles and Angle Measure	52-69	422

REGULARITY Rewrite each degree measure in radians and each radian measure in degrees.

54. $18°$

55. $6°$

56. $-72°$

57. $-820°$

58. 4π

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

60. $-\frac{9\pi}{2}$

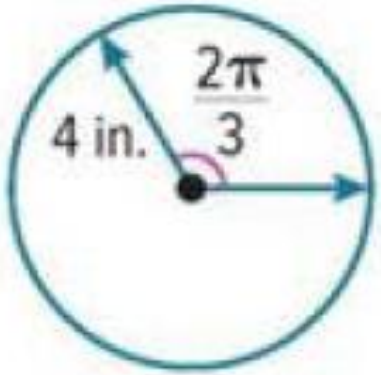
61. $-\frac{7\pi}{12}$

62. $-270°$

Q15	Learning Outcome/Performance Criteria**	Lesson 9-1	Exercise	Page
MCQ اختيار من متعدد	Convert degree measures of angles to radian measures and vice versa and apply to finding arc length	Angles and Angle Measure	52-69	422

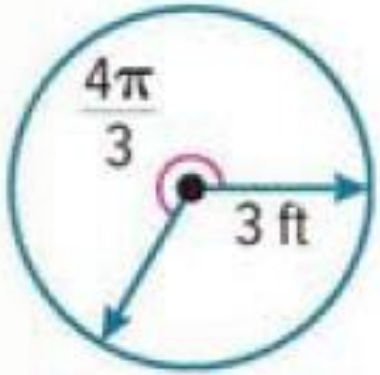
Find the length of each arc. Round to the nearest tenth.

63.



64.

65.



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Q16	Learning Outcome/Performance Criteria**	Lesson 9-2	Exercise	Page
MCQ اختيار من متعدد	**Find values of trigonometric functions by using reference angles.**	Trigonometric Functions of General Angles	40-45	434

Find the exact value of each trigonometric function.

40) $\tan 330°$

41) $\cos\left(-\frac{11}{4}\pi\right)$

42) $\cot 30°$

43) $\csc\left(\frac{\pi}{4}\right)$

44) $\sin(-150°)$

45) $\tan\left(-\frac{\pi}{4}\right)$

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Q17	Learning Outcome/Performance Criteria**	Lesson 9-3	Exercise	Page
MCQ اختيار من متعدد	**Find values of trigonometric functions given a point on a unit circle or the measure of a special angle.**	Circular and Periodic Functions	(1-6)	441

The terminal side of angle θ in standard position intersects the unit circle at each point P.
Find $\cos\theta \ and \ \sin\theta$.

$1) P\left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$

$2) P(0, -1)$

$3) P\left(-\frac{2}{3}, \frac{\sqrt{5}}{3}\right)$

$4) P\left(-\frac{4}{5}, -\frac{3}{5}\right)$

$5) P\left(\frac{1}{6}, -\frac{\sqrt{35}}{6}\right)$

$6) P\left(\frac{\sqrt{7}}{4}, \frac{3}{4}\right)$

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Q18	Learning Outcome/Performance Criteria**	Lesson 9-4	Exercise	Page
MCQ اختيار من متعدد	**Model periodic real-world situations with sine and cosine functions. (No need for graphing calculator)**	Graphing Sine and Cosine Functions	**Example 5 & Example 6 (17-20)**	**449 & 450** **452**

Example 5 SPRINGS An object on a spring oscillates according to the function $y = 40 \cos \pi t$, where y is the distance in centimeters above its equilibrium position at time t in seconds.

Part A Find the period and frequency, and describe them in the context of the situation.

Part B Identify the domain and range in the context of the situation.

Q18	Learning Outcome/Performance Criteria**	Lesson 9-4	Exercise	Page
MCQ اختيار من متعدد	**Model periodic real-world situations with sine and cosine functions. (No need for graphing calculator)**	Graphing Sine and Cosine Functions	**Example 5 & Example 6 (17-20)**	**449 & 450** **452**

Example 6

ELECTRICITY 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.

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Q18	Learning Outcome/Performance Criteria**	Lesson 9-4	Exercise	Page
MCQ اختيار من متعدد	**Model periodic real-world situations with sine and cosine functions. (No need for graphing calculator)**	Graphing Sine and Cosine Functions	**Example 5 & Example 6 (17-20)**	**449 & 450** **452**

17. USE A MODEL An object on a spring oscillates using the function $y = 25\cos \pi t$, where y is the distance in inches from its equilibrium position in t seconds.

a. Find and describe the period and frequency.

b. Identify the domain and range in the context of the situation.

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Q18	Learning Outcome/Performance Criteria**	Lesson 9-4	Exercise	Page
MCQ اختيار من متعدد	**Model periodic real-world situations with sine and cosine functions. (No need for graphing calculator)**	Graphing Sine and Cosine Functions	**Example 5 & Example 6 (17-20)**	**449 & 450** **452**

18. SWINGS Suppose a tire swing is rotated $\frac{\pi}{5}$ radians and released. The function $\mathbf{y = \frac{\pi}{5}\cos 2t}$ represents the displacement of the swing at time t for a frequency of radians per second.

a. Find the period and frequency and describe them in the context of the situation.

b. Identify the domain and range in the context of the situation.

Q18	Learning Outcome/Performance Criteria**	Lesson 9-4	Exercise	Page
MCQ اختيار من متعدد	**Model periodic real-world situations with sine and cosine functions. (No need for graphing calculator)**	Graphing Sine and Cosine Functions	**Example 5 & Example 6 (17-20)**	**449 & 450** **452**

19. REASONING A boat that is tied to a dock moves vertically up and down with the waves. Delray watches the boat for $\boldsymbol{30\ seconds}$ and notes that the boat moves up and down a total of $\boldsymbol{6}$ times. The difference between the boat's highest point and lowest point is $\boldsymbol{3\ feet}$. Write and graph a trigonometric function that models the boat's vertical position $\boldsymbol{x\ seconds}$ after she began watching. Assume that when Delray began watching the boat, it was at its highest point and that its average vertical position was $\boldsymbol{0\ feet}$.

Q18	Learning Outcome/Performance Criteria**	Lesson 9-4	Exercise	Page
MCQ اختيار من متعدد	**Model periodic real-world situations with sine and cosine functions. (No need for graphing calculator)**	Graphing Sine and Cosine Functions	**Example 5 & Example 6 (17-20)**	**449 & 450** **452**

20. FERRIS WHEELS A Ferris wheel at a state fair has a diameter of $\mathbf{65}\ \boldsymbol{feet}$ and makes **4** complete revolutions each minute. Santiago boards a car of the Ferris wheel at the car's lowest point, and he rides for **2** minutes. Write and graph a trigonometric function that models his height above or below the axle of the Ferris wheel $\boldsymbol{\theta}$ minutes after the ride starts.

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Q19	Learning Outcome/Performance Criteria**	Lesson 9-6	Exercise	Page
MCQ اختيار من متعدد	**Graph vertical translations of trigonometric functions.**	Translations of Trigonometric Graphs	**(13-18)**	**469**

State the amplitude, period, phase shift, vertical shift, and midline equation of each function. Then graph the function and state the domain and range.

13. $y = \cos\theta + 3$

14. $\boldsymbol{y = \tan\theta - 1}$

15. $\boldsymbol{y = \tan\theta + \frac{1}{2}}$

16. $\boldsymbol{y = 2\cos\theta - 5}$

17. $y = 2\sin\theta - 4$

18. $y = \frac{1}{3}\sin\theta + 7$

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Q20	Learning Outcome/Performance Criteria**	Lesson 9-6	Exercise	Page
MCQ اختيار من متعدد	**Find values of angle measures by using inverse trigonometric functions.**	Translations of Trigonometric Graphs	**Example 1 (1-9)**	**473 & 475**

Example 1 Find $\boldsymbol{Tan^{-1}}\ \sqrt{3}$. Write angle measures in degrees and radians.

Q20	Learning Outcome/Performance Criteria**	Lesson 9-7	Exercise	Page
MCQ اختيار من متعدد	**Find values of angle measures by using inverse trigonometric functions.**	Inverse Trigonometric Functions	**Example 1 (1-9)**	**473 & 475**

Find each value. Write angle measures in degrees and radians.

1) $\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)$.

2) $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$.

3) $\arccos\left(-\frac{1}{2}\right)$.

4) $\text{Arctan}\sqrt{3}$.

5) $\text{Arccos}\left(-\frac{\sqrt{2}}{2}\right)$.

6) $\tan^{-1}(-1)$

7) $\sin^{-1}\left(\frac{\sqrt{2}}{2}\right)$.

8) $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$.

9) $\text{Arcsin}\ 1$.

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هيكل أسئلة الرياضيات
الفصل الأول
EoT1
11Advanced

القسم الكتابي (ورقي)
FRQ

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Q21	Learning Outcome/Performance Criteria**	Lesson 5-2	Exercise	Page
FRQ كتابي ورقي	**Solve exponential equations in one variable.**	Solving Exponential Equations and Inequalities	**(1-6)**	**229**

Solve each equation.

1) $25^{2x+3} = 25^{5x-9}$

2) $9^{8x-4} = 81^{3x+6}$

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Q21	Learning Outcome/Performance Criteria**	Lesson 5-2	Exercise	Page
FRQ كتابي ورقي	**Solve exponential equations in one variable.**	Solving Exponential Equations and Inequalities	**(1-6)**	**229**

Solve each equation.

3) $4^{x-5} = 16^{2x-31}$

4) $4^{3x-3} = 8^{4x-4}$

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Q21	Learning Outcome/Performance Criteria**	Lesson 5-2	Exercise	Page
FRQ كتابي ورقي	**Solve exponential equations in one variable.**	Solving Exponential Equations and Inequalities	**(1-6)**	**229**

Solve each equation.

5) $9^{-x+5} = 27^{6x-10}$

6) $125^{3x-4} = 25^{4x+2}$

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Q22	Learning Outcome/Performance Criteria**	Lesson 5-2	Exercise	Page
FRQ كتابي ورقي	a) Solve logarithmic equations using properties of equality. b) Simplify and evaluate expressions by using the properties of logarithms.	Solving Exponential Equations and Inequalities	**(7-12)** **(13-24)**	**273**

Solve each equation.

7) $\log_4(2x^2 - 4) = \log_4 2x$

8) $\log_5(x^2 - 6) = \log_5 x$

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Q22	Learning Outcome/Performance Criteria**	Lesson 5-2	Exercise	Page
FRQ كتابي ورقي	a) Solve logarithmic equations using properties of equality. b) Simplify and evaluate expressions by using the properties of logarithms.	Solving Exponential Equations and Inequalities	**(7-12)** **(13-24)**	**273**

Solve each equation.

9) $\log_3(x^2 - 8) = \log_3 2x$

10) $\log_4(2x^2 - 20) = \log_4 6x$

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Q22	Learning Outcome/Performance Criteria**	Lesson 5-2	Exercise	Page
FRQ كتابي ورقي	a) Solve logarithmic equations using properties of equality. b) Simplify and evaluate expressions by using the properties of logarithms.	Solving Exponential Equations and Inequalities	**(7-12)** **(13-24)**	**273**

Solve each equation.

11) $\log_2(6x^2 + 1) = \log_2 5x$

12) $\log_6(6x^2 - 3) = \log_6 7x$

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Q22	Learning Outcome/Performance Criteria**	Lesson 5-2	Exercise	Page
FRQ كتابي ورقي	a) Solve logarithmic equations using properties of equality. b) Simplify and evaluate expressions by using the properties of logarithms.	Solving Exponential Equations and Inequalities	**(7-12)** **(13-24)**	**273**

Use $\log_4 2 = 0.5, \log_4 3 \approx 0.7925$, and $\log_4 5 \approx 1.1610$ to approximate the value of each expression.

13) $\log_4 30$

14) $\log_4 20$

$4 \log_4 \frac{2}{3}$

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Q22	Learning Outcome/Performance Criteria**	Lesson 5-2	Exercise	Page
FRQ كتابي ورقي	a) Solve logarithmic equations using properties of equality. b) Simplify and evaluate expressions by using the properties of logarithms.	Solving Exponential Equations and Inequalities	**(7-12)** **(13-24)**	**273**

Use $\log_4 2 = 0.5, \log_4 3 \approx 0.7925$, and $\log_4 5 \approx 1.1610$ to approximate the value of each expression.

15) $\log_4 \frac{4}{3}$

16) $\log_4 9$

13) $\log_4 8$

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Q22	Learning Outcome/Performance Criteria**	Lesson 5-2	Exercise	Page
FRQ كتابي ورقي	a) Solve logarithmic equations using properties of equality. b) Simplify and evaluate expressions by using the properties of logarithms.	Solving Exponential Equations and Inequalities	**(7-12)** **(13-24)**	**273**

Use $\log_2 3 = 1.5850$ *and* ≈ 2.3219 to approximate the value of each expression.

19) $\log_2 25$

20) $\log_2 27$

21) $\log_2 125$

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Q22	Learning Outcome/Performance Criteria**	Lesson 5-2	Exercise	Page
FRQ كتابي ورقي	a) Solve logarithmic equations using properties of equality. b) Simplify and evaluate expressions by using the properties of logarithms.	Solving Exponential Equations and Inequalities	**(7-12)** **(13-24)**	**273**

Use $\log_2 3 = 1.5850$ *and* ≈ 2.3219 to approximate the value of each expression.

22) $\log_2 625$

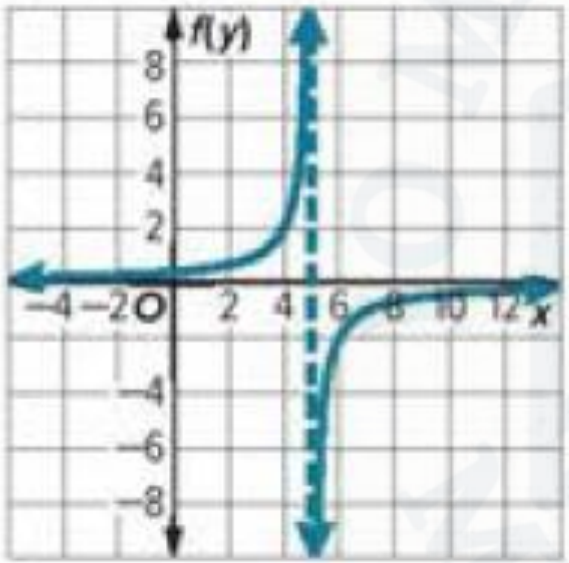
23) $\log_2 81$

24) $\log_2 243$

Q23	Learning Outcome/Performance Criteria**	Lesson 7-3	Exercise	Page
FRQ كتابي ورقي	**Graph and write reciprocal functions by using transformations.**	Graphing Reciprocal Functions	**(17-22)**	**334**

Identify the values of a, h, and k. Then write a function for the graph $g(x) = \frac{a}{x-h} + k$

17.



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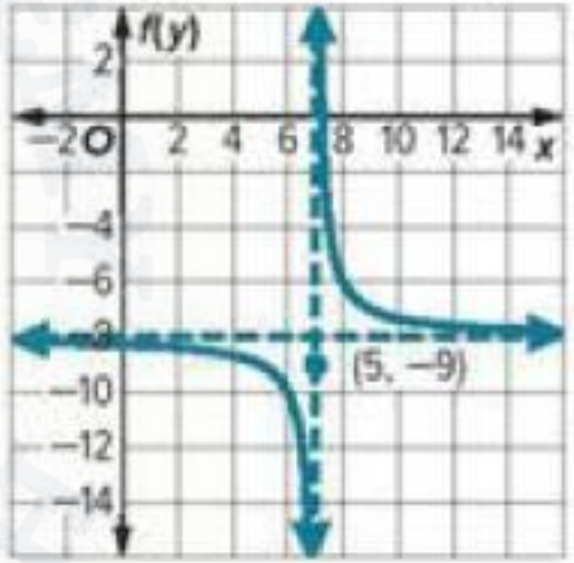

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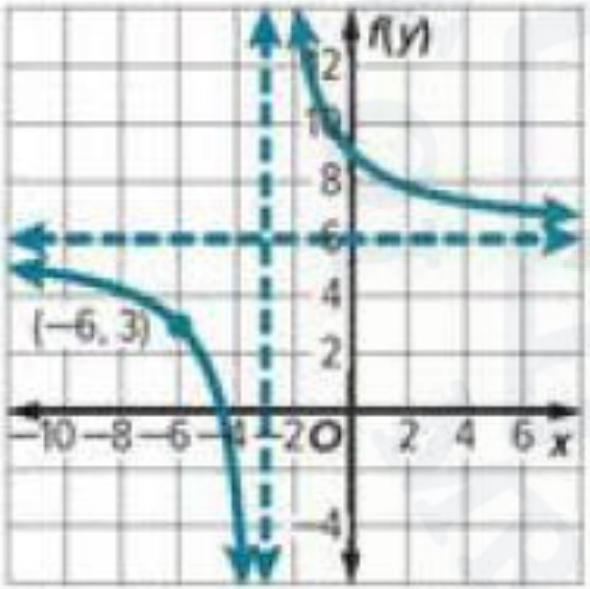
Q23	Learning Outcome/Performance Criteria**	Lesson 7-3	Exercise	Page
FRQ كتابي ورقي	**Graph and write reciprocal functions by using transformations.**	Graphing Reciprocal Functions	**(17-22)**	**334**

Identify the values of a, h, and k. Then write a function for the graph $g(x) = \frac{a}{x-h} + k$

19.



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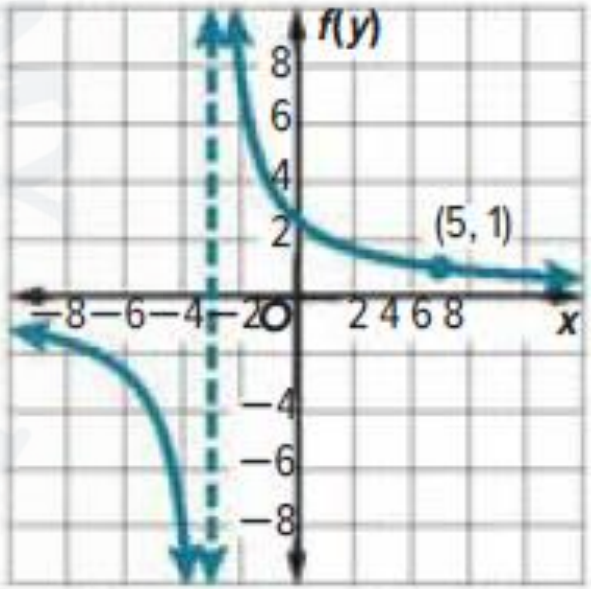
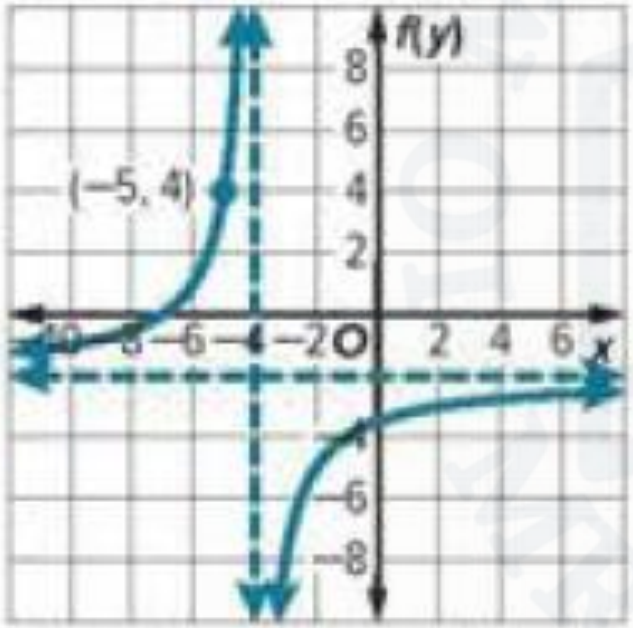


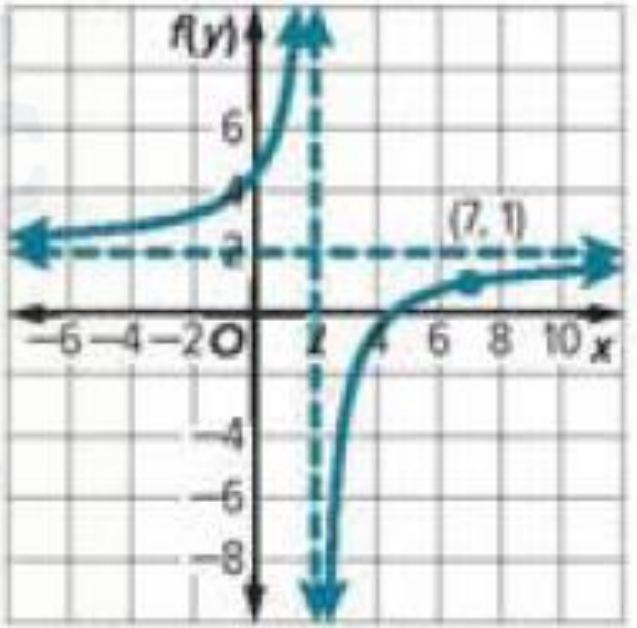
Q23	Learning Outcome/Performance Criteria**	Lesson 7-3	Exercise	Page
FRQ كتابي ورقي	**Graph and write reciprocal functions by using transformations.**	Graphing Reciprocal Functions	**(17-22)**	**334**

Identify the values of a, h, and k. Then write a function for the graph $g(x) = \frac{a}{x-h} + k$

21.



22.



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Q24	Learning Outcome/Performance Criteria**	Lesson 7-3	Exercise	Page
FRQ كتابي ورقي	**Analyze standardized data and distributions by using z-values .(The table will be provided in the question)**	Graphing Reciprocal Functions	**Example 6, Example 7 & Example 8 (8-13) & 14**	**399 & 400 401 & 402**

Example 6

Find z if X = 24, μ = 19, and σ = 3.8.

Check

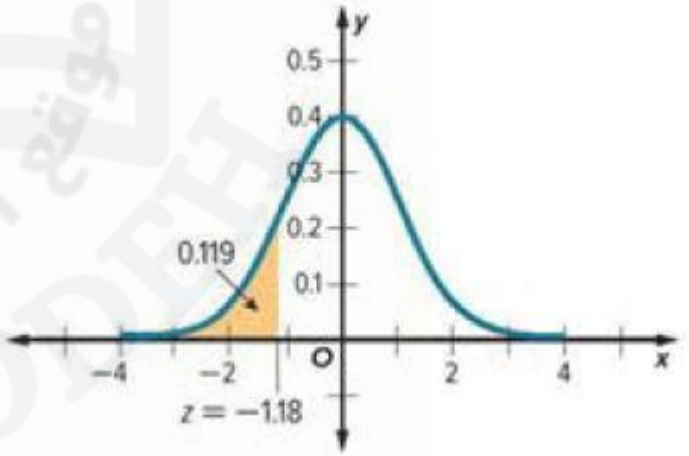
Find z if X = 106.3, μ = 88.8, and σ = 9.6. Round your answer to the nearest thousandth. z =

Q24	Learning Outcome/Performance Criteria**	Lesson 7-3	Exercise	Page
FRQ كتابي ورقي	**Analyze standardized data and distributions by using z-values .(The table will be provided in the question)**	Graphing Reciprocal Functions	**Example 6, Example 7 & Example 8 (8-13) & 14**	**399 & 400 401 & 402**

Example 7

Use a Standard Normal Distribution Table to find the area under the normal curve within the interval $z < -1.18$.

z	0.00	⋯	0.08	0.09
−3.4	0.0003	⋯	0.0003	0.0002
⋮	⋯	⋯	⋯	⋯
−1.1	0.1357	⋯	0.1190	0.1170



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Q24	Learning Outcome/Performance Criteria**	Lesson 7-3	Exercise	Page
FRQ كتابي ورقي	**Analyze standardized data and distributions by using z-values .(The table will be provided in the question)**	Graphing Reciprocal Functions	**Example 6, Example 7 & Example 8 (8-13) & 14**	**399 & 400 401 & 402**

Check

Use a table to find the area under the normal curve within $z < 0.19$. Round your answer to the nearest ten thousandth. The area is

Q24	Learning Outcome/Performance Criteria**	Lesson 7-3	Exercise	Page
FRQ كتابي ورقي	**Analyze standardized data and distributions by using z-values .(The table will be provided in the question)**	Graphing Reciprocal Functions	**Example 6, Example 7 & Example 8 (8-13) & 14**	**399 & 400 401 & 402**

Example 8 INTERNET TRAFFIC The number of daily hits to a local news Web site is normally distributed with $\mu = 98{,}452$ hits and $\sigma = 10{,}325$ hits.

Find the probability that the Web site will get at least 100,000 hits on a given day, $P(X > 100{,}000)$.

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Q24	Learning Outcome/Performance Criteria**	Lesson 7-3	Exercise	Page
FRQ كتابي ورقي	**Analyze standardized data and distributions by using z-values .(The table will be provided in the question)**	Graphing Reciprocal Functions	**Example 6, Example 7 & Example 8 (8-13) & 14**	**399 & 400 401 & 402**

Find the z-value for each standard normal distribution.

8. $\sigma = 9.8, X = 55.4, and\ \mu = 68.34$

9. $\sigma = 11.6, X = 42.80, and\ \mu = 68.2$

10. $\sigma = 11.9, X = 119.2, and\ \mu = 112.4$

Q24	Learning Outcome/Performance Criteria**	Lesson 7-3	Exercise	Page
FRQ كتابي ورقي	**Analyze standardized data and distributions by using z-values .(The table will be provided in the question)**	Graphing Reciprocal Functions	**Example 6, Example 7 & Example 8 (8-13) & 14**	**399 & 400 401 & 402**

Use a table to find the area under the normal curve for each interval.

11. $z > 0.58$

12. $z < -1.56$

13. $-2.29 < z < 2.76$

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Q24	Learning Outcome/Performance Criteria**	Lesson 7-3	Exercise	Page
FRQ كتابي ورقي	**Analyze standardized data and distributions by using z-values .(The table will be provided in the question)**	Graphing Reciprocal Functions	**Example 6, Example 7 & Example 8 (8-13) & 14**	**399 & 400 401 & 402**

Use a table to find the area under the normal curve for each interval.

14. 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?

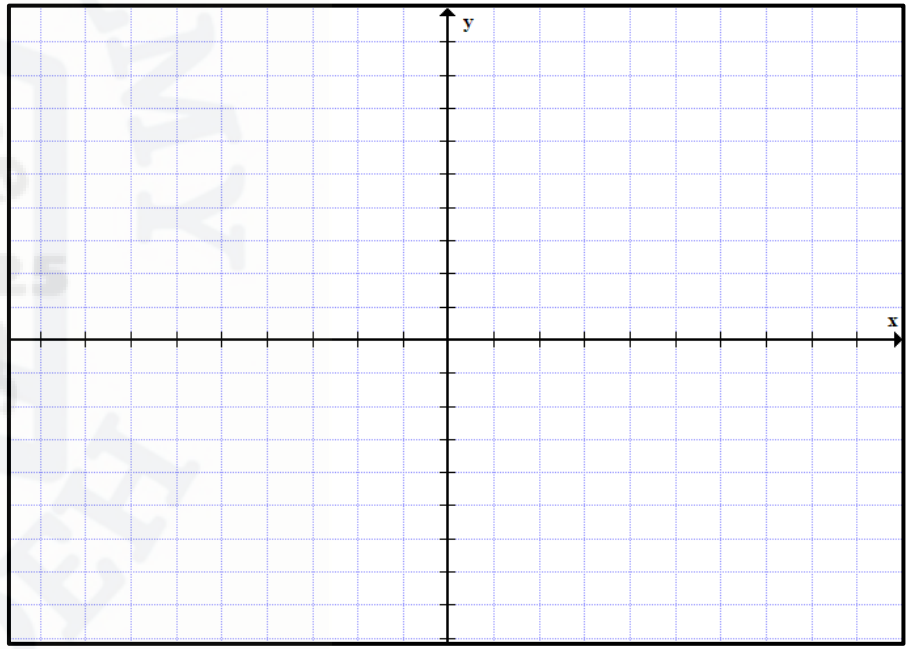
b. What percent of the scores are over 115?

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

Q25	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي ورقي	**Graph and analyze tangent functions. (No need for graphing calculator)**	Graphing Other Trigonometric Functions	**Example 1 & Example 2 (1-6)**	**455,456 & 457 461**

Example 1 Find the period, asymptotes, x-intercepts, midline, and transformations of Then graph the function.

$$y = tan\, 3x.$$



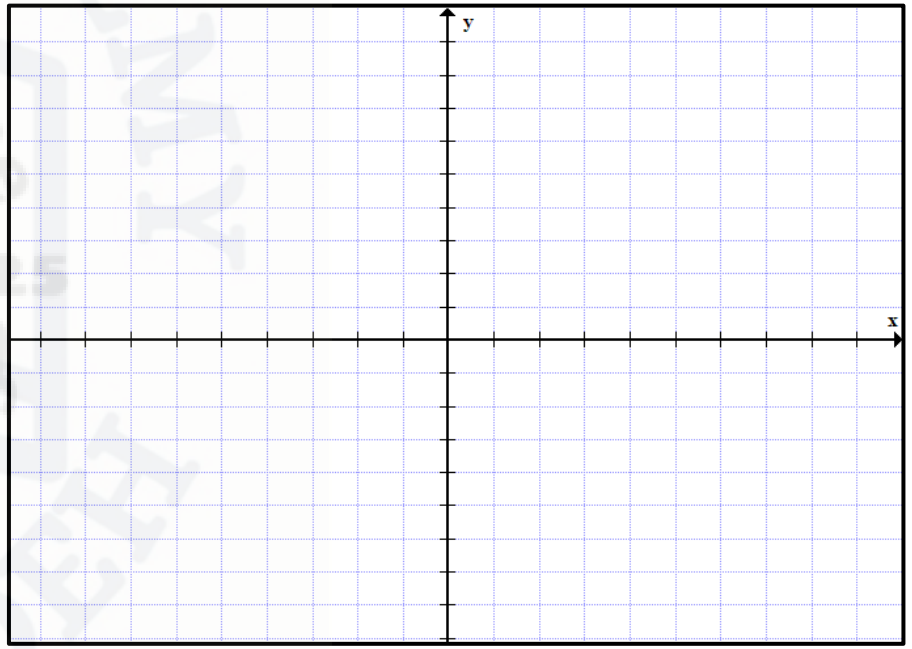
period:
asymptotes:
x-intercepts:

The function is in relation to the parent function.

Q25	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي ورقي	**Graph and analyze tangent functions. (No need for graphing calculator)**	Graphing Other Trigonometric Functions	**Example 1 & Example 2 (1-6)**	**455,456 & 457 461**

Example 2 Find the period, asymptotes, x-intercepts, midline, and transformations tangent of the function. Then graph the function.

$$y = -\frac{1}{3}\tan 2x.$$

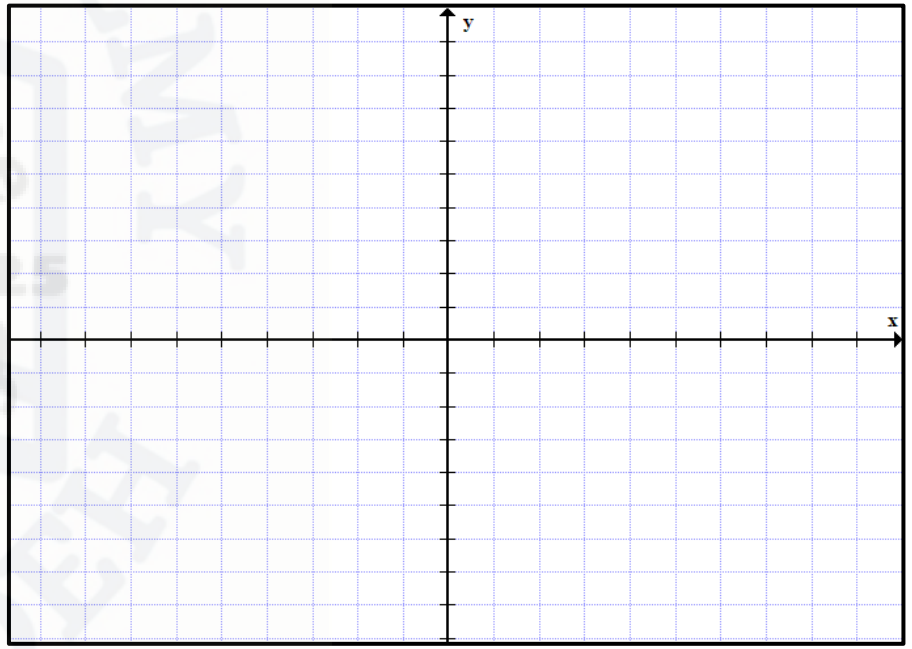


period:
asymptotes:
x-intercepts:

The function is in relation to the parent function.

Q25	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي ورقي	**Graph and analyze tangent functions. (No need for graphing calculator)**	Graphing Other Trigonometric Functions	**Example 1 & Example 2 (1-6)**	**455,456 & 457 461**

1) $y = \tan 5x$.



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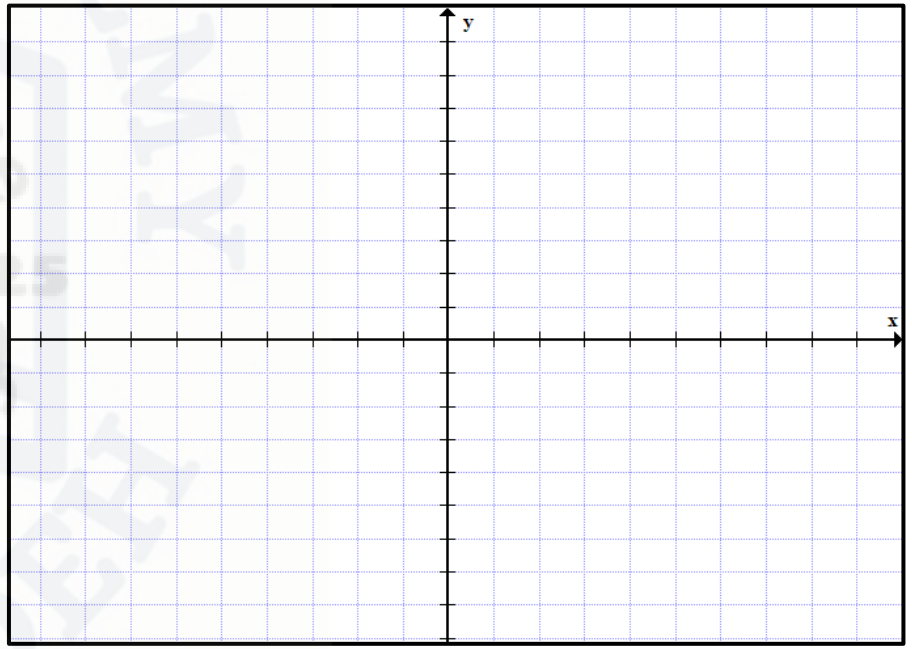
Q25	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي ورقي	**Graph and analyze tangent functions. (No need for graphing calculator)**	Graphing Other Trigonometric Functions	**Example 1 & Example 2 (1-6)**	**455,456 & 457 461**

Find the period, asymptotes, x-intercepts, midline, and transformations tangent of the function. Then graph the function.

$$2)\ y = \tan 4x.$$



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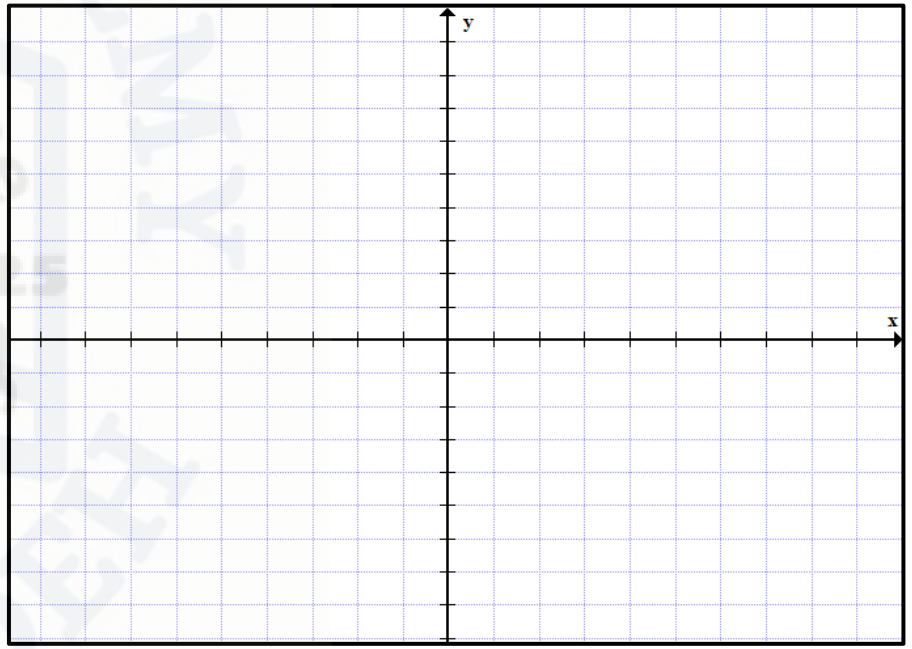
Q25	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي ورقي	**Graph and analyze tangent functions. (No need for graphing calculator)**	Graphing Other Trigonometric Functions	**Example 1 & Example 2 (1-6)**	**455,456 & 457 461**

Find the period, asymptotes, x-intercepts, midline, and transformations tangent of the function. Then graph the function.

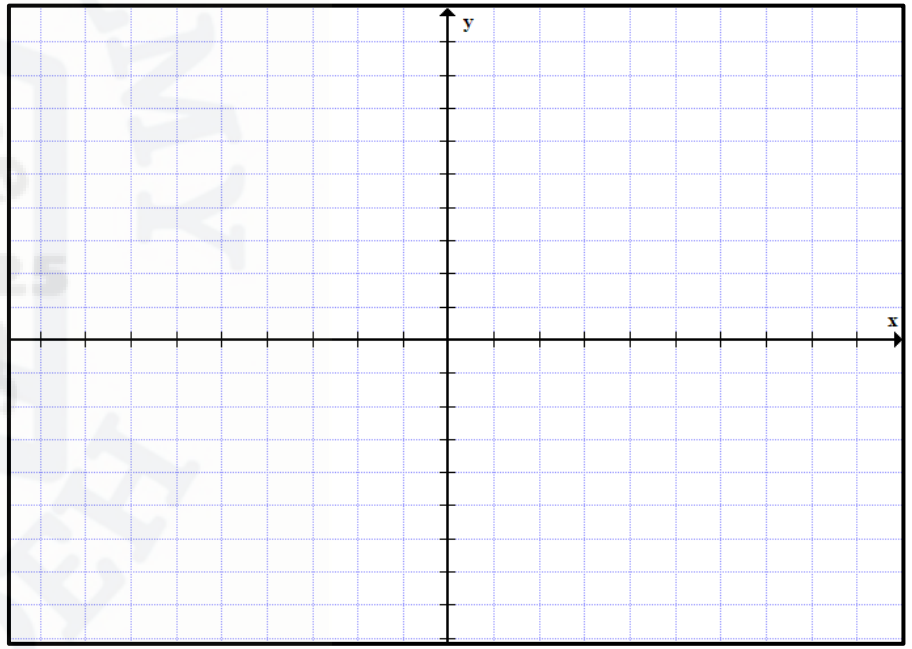
3) $y = \tan 2x$.



Q25	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي ورقي	**Graph and analyze tangent functions. (No need for graphing calculator)**	Graphing Other Trigonometric Functions	**Example 1 & Example 2 (1-6)**	**455,456 & 457 461**

Find the period, asymptotes, x-intercepts, midline, and transformations tangent of the function. Then graph the function.

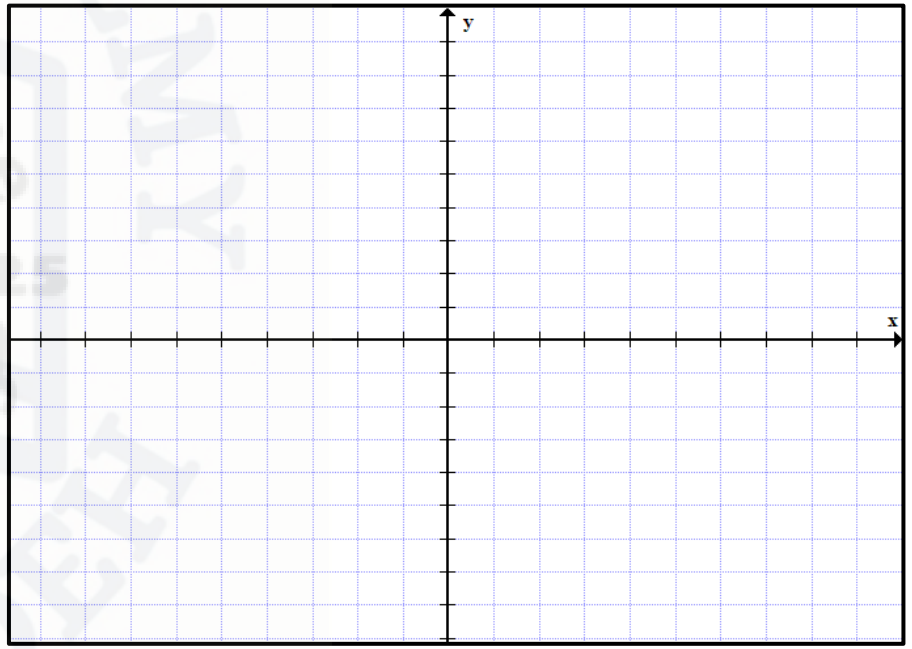
4) $y = \frac{1}{2}\tan 5x.$



Q25	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي ورقي	**Graph and analyze tangent functions. (No need for graphing calculator)**	Graphing Other Trigonometric Functions	**Example 1 & Example 2 (1-6)**	**455,456 & 457 461**

Find the period, asymptotes, x-intercepts, midline, and transformations tangent of the function. Then graph the function.

5) $y = 2\tan\frac{1}{2}x.$



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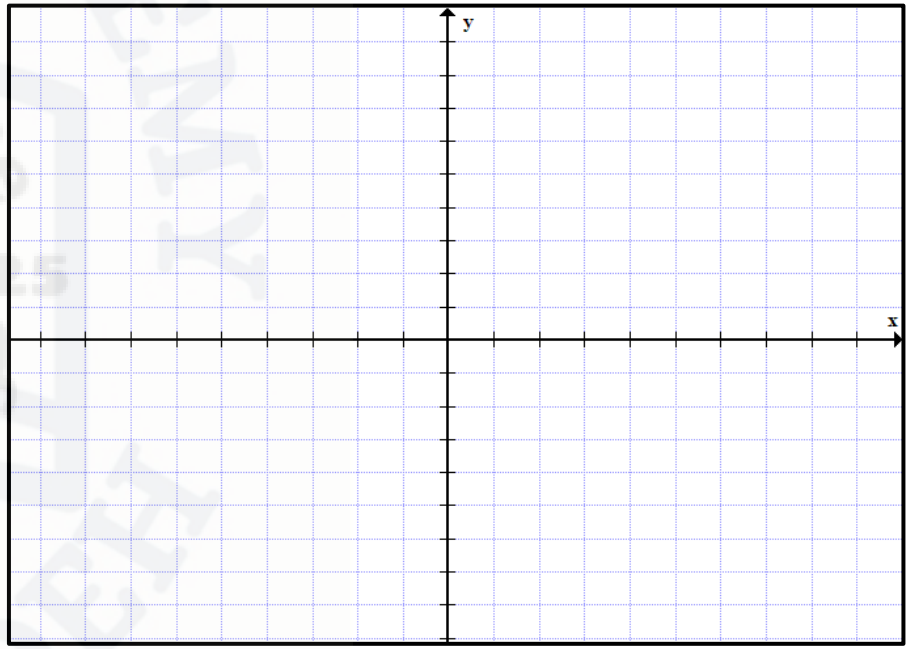
Q25	Learning Outcome/Performance Criteria**	Lesson 7-5	Exercise	Page
FRQ كتابي ورقي	**Graph and analyze tangent functions. (No need for graphing calculator)**	Graphing Other Trigonometric Functions	**Example 1 & Example 2 (1-6)**	**455,456 & 457 461**

Find the period, asymptotes, x-intercepts, midline, and transformations tangent of the function. Then graph the function.

6) $y = -\frac{1}{2}\tan 2x.$



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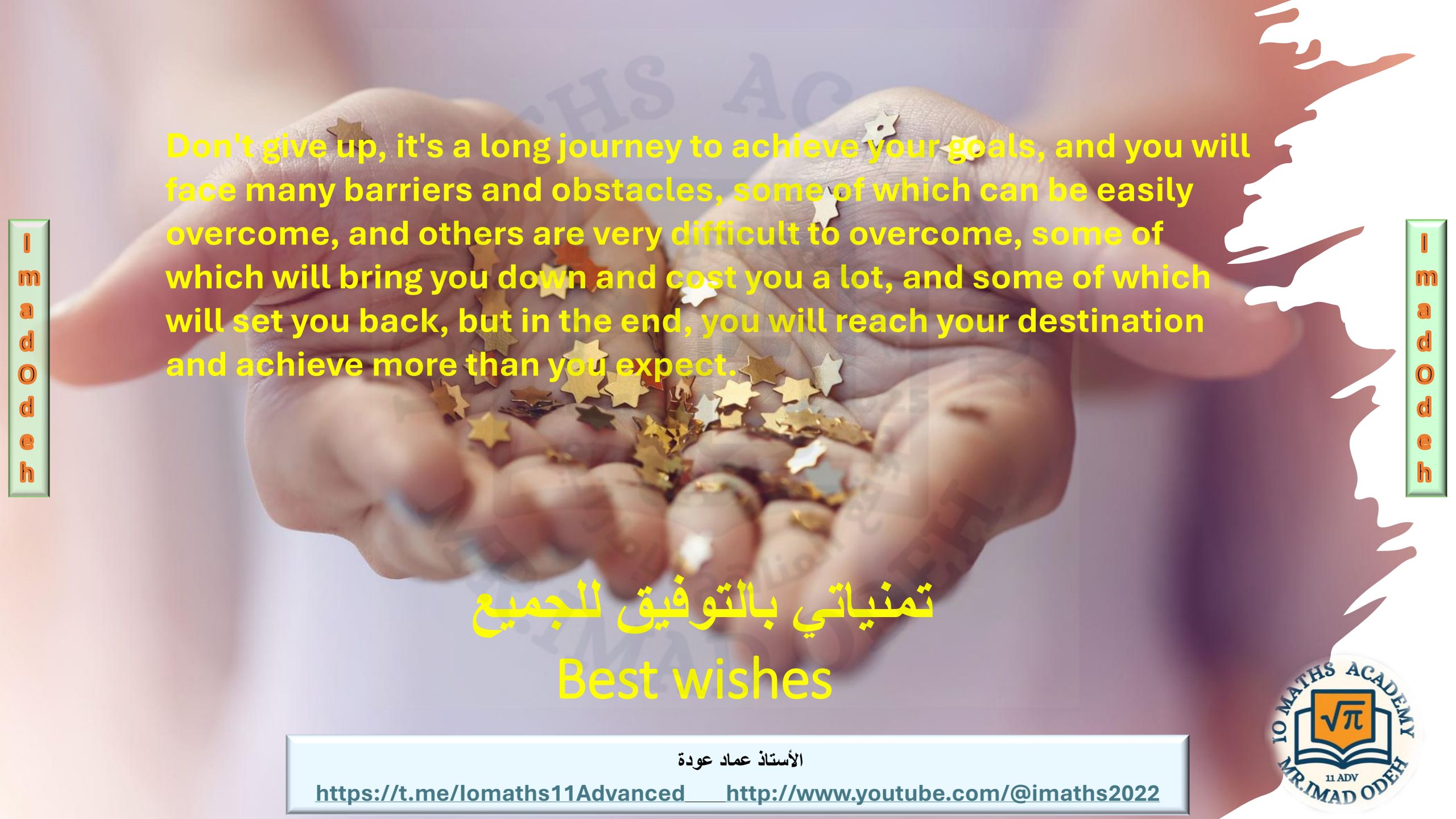

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