حل تجميعة أسئلة شاملة وفق الهيكل الوزاري الجديد منهج ريفيل

تم تحميل هذا الملف من موقع المناهج الإماراتية	
موقع المناهج ⇦ المناهج الإماراتية ⇦ الصف الثامن ⇦ رياضيات ⇦ الفصل الأول ⇦ ملفات متنوعة ⇦ الملف	
تاريخ إضافة الملف على موقع المناهج: 2025-11-23 09:34:10	
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	المزيد من مادة رياضيات:
إعداد: محمد الدسوقي	

التواصل الاجتماعي بحسب الصف الثامن					
صفحة المناهج الإماراتية على فيسبوك					
المواد على تلغرام	التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات	

المزيد من الملفات بحسب الصف الثامن والمادة رياضيات في الفصل الأول	
1	تجميعة الأسئلة الموضوعية وفق الهيكل الوزاري الجديد منهج بريدج
2	مراجعة شاملة وفق الهيكل الوزاري الجديد منهج بريدج
3	ملخص كامل أسئلة وفق الهيكل الوزاري الجديد منهج ريفيل
4	ملخص كامل أسئلة وفق الهيكل الوزاري الجديد منهج بريدج
5	حل مراجعة وفق كامل الهيكل الوزاري الجديد منهج ريفيل المسار العام

Academic Year العام الدراسي	2025/2026
Term الفصل	1
Subject المادة	Mathematics/Reveal الرياضيات/ريفيل
Grade الصف	8
Stream المسار	General العام
Number of MCQ عدد الأسئلة الموضوعية	20
Marks of MCQ درجة الأسئلة الموضوعية	3
Number of FRQ عدد الأسئلة المقالية	5
Marks per FRQ الدرجات للأسئلة المقالية	(6-10)
Type of All Questions نوع كافة الأسئلة	MCQ/ الأسئلة الموضوعية FRQ/ الأسئلة المقالية
Maximum Overall Grade الدرجة القصوى الممكنة	100
Exam Duration - مدة الامتحان	150 minutes
Mode of Implementation - طريقة التطبيق	SwiftAssess & Paper-Based
Calculator الآلة الحاسبة	Not Allowed غير مسموحة

	Question* السؤال*	Learning Outcome/Performance Criteria** نتائج التعلم/ معايير الأداء**	Reference in the Student Book المرجع في كتاب الطالب	
			Example/Exercise مثال/تمرين	Page الصفحة
MCQ- الأسئلة الموضوعية	1	Use the Laws of Exponents to multiply and divide monomials with common bases	5 to 9	23
	2	Use the Laws of Exponents to multiply and divide monomials with common bases	1 to 4	23
	3	Use the Power of a Power Property and the Power of a Product Property to simplify expressions with integer exponents	5 to 12	31, 32
	4	Use the Zero Exponent Rule and the Quotient of Powers Property to simplify expressions with zero and negative integer exponents	1 to 10	41
	5	Write very large and very small numbers using scientific notation	1 to 6	53
	6	Show how the decimal form of a rational number repeats eventually	1 to 4	77
	7	Convert a repeating decimal into a rational number	5 to 8	77
	8	Find square and cube roots	1 to 7	89
	9	Use square and cube roots to solve equations involving perfect squares and cubes	8 to 10	89
	10	Estimate irrational numbers by approximating their locations on a number line or by truncating their decimal expansions	1 to 8	109
	11	Use rational approximations to compare and order real numbers, including irrational numbers	1 to 7	121
	12	Write linear equations in one variable with rational coefficients and use the properties of equality to solve them	1 to 4	143
	13	Solve multi-step linear equations with rational coefficients by using the Distributive Property and combining like terms	1 to 6	149
	14	Write and solve multi-step linear equations with rational coefficients by using the Distributive Property and combining like terms	1 to 3	157
	15	Identify the number of solutions of a linear equation in one variable by simplifying each side and comparing coefficients and constants	1 to 9	167
	16	Identify the slope of a line and interpret it as the rate of change within the context of the problem	1 to 7	203
	17	Identify similar triangles that fall on the same line in a coordinate plane and show that the slopes of the lines are equal	1 to 5	211
	18	Write equations of the form y = mx + b when given a table, graph, or verbal description	1 to 6	235
	19	Write equations of the form y = mx + b when given a table, graph, or verbal description	7 to 9	235
	20	Interpret the slope and y-intercept of a line from an equation of the form y = mx + b in order to graph the line on the coordinate plane	1 to 6	245
FRQ - الأسئلة المقالية	21	Use integer exponents to show repeated multiplication of rational numbers	1 to 9	11
	22	Identify irrational numbers and name the set(s) of real numbers to which a given real number belongs.	1 to 11	99
	23	Use rational approximations to compare and order real numbers, including irrational numbers.	5 to 7	121
	24	Use the properties of equality to solve equations with variables on each side that have rational coefficients	1 to 8	135
	25	Graph and compare proportional relationships using words, equations, and tables and interpret the unit rate as the slope of the line	1 to 4	189

* Questions might appear in a different order in the actual exam.

* قد تظهر الأسئلة بترتيب مختلف في الامتحان الفعلي.

** As it appears in the textbook, LMS, and (Main_IP).

** كما وردت في كتاب الطالب وLMS والخطة الفصلية.

MCQ الأسئلة الموضوعية

1. Use the Laws of Exponents to multiply and divide monomials with common bases

Name _____ Period _____ Date _____

Practice

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5. Simplify $\frac{b^{12}}{b^5}$. (Example 4)

b^7

6. Simplify $\frac{5^5 \cdot 6^3 \cdot 8^{10}}{5^3 \cdot 6 \cdot 8^9}$. (Example 6)

$5^2 \cdot 6^2 \cdot 8$ or 7,200

7. A publisher sells 10^6 copies of a new science fiction book and 10^3 copies of a new mystery book. How many times as many science fiction books were sold than mystery books? (Example 5)

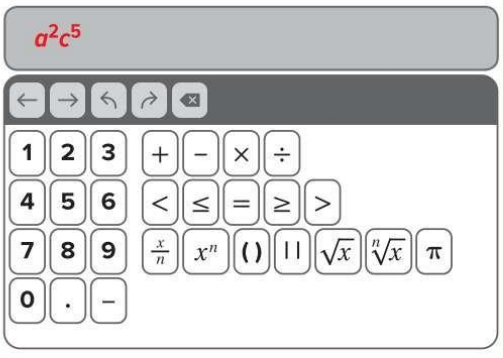
10^3 or 1,000

Test Practice

8. Simplify $\frac{45x^{15}}{9x^{10}}$. (Example 7)

$5x^5$

9. Equation Editor Simplify $\frac{a^4c^6}{a^2c}$.



2. Use the Laws of Exponents to multiply and divide monomials with common bases

Name _____ Period _____ Date _____

Practice

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Simplify each expression. (Examples 1–3)

1. $3^8 \cdot 3 =$ 3^9 or 19,683

2. $m^5 \cdot m^2 =$ m^7

3. $3m^3n^2 \cdot 8mn^3 =$ $24m^4n^5$

4. $9p^4 \cdot (-8p^2) =$ $-72p^6$

3. Use the Power of a Power Property and the Power of a Product Property to simplify expressions with integer exponents

Name _____ Period _____ Date _____

Practice

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5. $(2m^5)^6 =$ $64m^{30}$

6. $(7a^5b^6)^4 =$ $2{,}401a^{20}b^{24}$

7. $(-3w^3z^8)^5 =$ $-243w^{15}z^{40}$

8. $(-5r^4s^{10})^4 =$ $625r^{16}s^{40}$

9. Which is greater: 1,000 or $(6^2)^3$? Explain.
$(6^2)^3$; $(6^2)^3 = 46{,}656$ and $46{,}656 > 1{,}000$

Test Practice

10. **Multiselect** Select all of the expressions that simplify to the same expression.

- [x] $(x^3y^4)^2$
- [ ] $(x^2y)^2$
- [ ] $(x^3)^2y^6$
- [x] $x^6(y^4)^2$
- [x] $(x^3)^2(y^2)^4$

Apply *indicates multi-step problem

*11. A square floor has a side length of $7x^5y^6$ units. A square tile has a side length of x^2y units. How many tiles will it take to cover the floor?

$49x^6y^{10}$ tiles

*12. A cube has a side length of $3x^6$ units. A smaller cube has a side length of x^2 units. How many smaller cubes will fit in the larger cube?

$27x^{12}$ cubes

4. Use the Zero Exponent Rule and the Quotient of Powers Property to simplify expressions with zero and negative integer exponents

Name _____ Period _____ Date _____

Practice

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Simplify each expression. (Example 1)

1. $46^0 =$ 1

2. w^0, where $w \neq 0$ 1

Express each using a positive exponent. (Example 2)

3. $8^{-4} =$ $\frac{1}{8^4}$

4. $y^{-9} =$ $\frac{1}{y^9}$

Express each fraction using a negative exponent. (Example 3)

5. $\frac{1}{d^6} =$ d^{-6}

6. $\frac{1}{10^5} =$ 10^{-5}

Simplify each expression. (Examples 4 and 5)

7. $9^4 \cdot 9^{-6} =$ $\frac{1}{81}$

8. $y^{-9} \cdot y^3 =$ $\frac{1}{y^6}$

9. $\frac{x^{-8}}{x^{-12}} =$ x^4

10. $\frac{d^{-13}}{d^{-2}} =$ $\frac{1}{d^{11}}$

5. Write very large and very small numbers using scientific notation

Name _____ Period _____ Date _____

Practice

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Write each number in standard form. (Examples 1 and 2)

1. $1.6 \times 10^3 =$ 1,600

2. $1.49 \times 10^{-7} =$ 0.000000149

3. A calculator screen shows a number in scientific notation as 8.3E−6. Write this number in standard form. (Example 3)

0.0000083

4. A calculator screen shows a number in scientific notation as 7E11. Write this number in standard form. (Example 3)

700,000,000,000

Write each number in scientific notation. (Examples 4 and 5)

5. 2,204,000,000 = 2.204×10^9

6. 0.0000000642 = 6.42×10^{-8}

6. Show how the decimal form of a rational number repeats eventually

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Practice

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Write each rational number in decimal form. Then determine whether the decimal is a terminating decimal. (Examples 1 and 2)

1. $-\frac{11}{16} =$ **−0.6875; terminating**

2. $\frac{5}{33} =$ **$0.\overline{15}$; not terminating**

3. $4\frac{3}{8} =$ **4.375; terminating**

4. $-9\frac{11}{30} =$ **$-9.3\overline{6}$; not terminating**

7. Convert a repeating decimal into a rational number

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Practice

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5. $0.\overline{8} =$ $\frac{8}{9}$

6. $-0.\overline{18} =$ $-\frac{2}{11}$

7. $-1.\overline{5} =$ $-1\frac{5}{9}$

8. $4.\overline{45} =$ $4\frac{5}{11}$

8. Find square and cube roots

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Practice

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Simplify using rational numbers. If the expression cannot be simplified, explain why. (Examples 1–4)

1. $\sqrt{361} =$ 19

2. $\pm\sqrt{1.96} =$ ± 1.4

3. $-\sqrt{\frac{9}{16}} =$ $-\frac{3}{4}$

4. $\sqrt{-441} =$ _____

The expression cannot be simplified. There is no rational square root because no number times itself is equal to −441.

5. Solve $m^2 = 0.04$. (Example 5) ± 0.2

Simplify using rational numbers. (Examples 6 and 7)

6. $\sqrt[3]{343} =$ 7

7. $\sqrt[3]{-512} =$ -8

9. Use square and cube roots to solve equations involving perfect squares and cubes

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Practice

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8. A basin of a water fountain is cube shaped and has a volume of 91.125 cubic feet. Solve $s^3 = 91.125$ to find the length s of one side of the basin. (Example 8)

4.5 feet

Test Practice

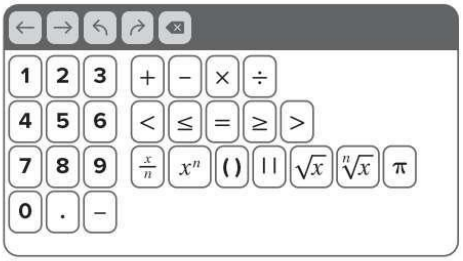
9. Moesha has 196 pepper plants that she wants to plant in a square formation. How many pepper plants should she plant in each row?

14 plants

10. **Equation Editor** What is the value of p in the equation shown?

$p^3 = -0.3$

−0.3



10. Estimate irrational numbers by approximating their locations on a number line or by truncating their decimal expansions

Name _____ Period _____ Date _____

Practice

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Estimate each square root or cube root to the nearest integer. (Examples 1 and 3)

1. $\sqrt{125} \approx$ 11
2. $\sqrt{55} \approx$ 7
3. $\sqrt[3]{70} \approx$ 4
4. $\sqrt[3]{923} \approx$ 10

Estimate each square root to the nearest tenth. (Example 2)

5. $\sqrt{296} \approx$ 17.2
6. $\sqrt{5} \approx$ 2.2
7. $\sqrt{11} \approx$ 3.3
8. $\sqrt{62} \approx$ 7.9

11. Use rational approximations to compare and order real numbers, including irrational numbers

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Practice

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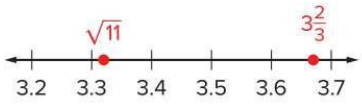
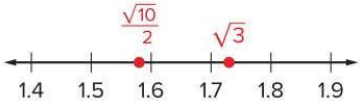
Complete each statement using <, >, or =. Then graph the numbers on the number line. (Examples 1 and 2)

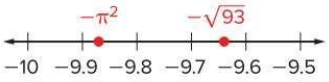
1. $\sqrt{11}$ < $3\frac{2}{3}$



2. $\sqrt{3}$ > $\frac{\sqrt{10}}{2}$



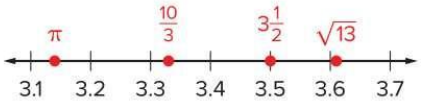
3. $-\pi^2$ < $-\sqrt{93}$



4. $-\sqrt{12}$ < -320%

5. Order the set $\left\{3\frac{1}{2}, \frac{10}{3}, \pi, \sqrt{13}\right\}$ from least to greatest. Then graph the set on the number line. (Example 3)

$\left\{\pi, \frac{10}{3}, 3\frac{1}{2}, \sqrt{13}\right\}$



6. The table shows the foul-shot statistics for three players in a recent basketball game. Which player had the greatest foul-shot statistic? (Example 4)

Player	Foul-Shot Statistic
1	$\frac{7}{9}$
2	72%
3	8 out of 10

Player 3

Test Practice

7. Multiple Choice Select the symbol that makes the sentence true.

$\sqrt{27}$ __ $\frac{\sqrt{95}}{2}$

Ⓐ <
Ⓑ >
Ⓒ =
Ⓓ ≤

12. Write linear equations in one variable with rational coefficients and use the properties of equality to solve them

Name _____ Period _____ Date _____

Practice

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Write and solve an equation for each exercise. Check your solution.
(Examples 1 and 2)

1. Marko has 45 comic books in his collection, and Tamara has 61 comic books. Marko buys 4 new comic books each month and Tamara buys 2 comic books each month. After how many months will Marko and Tamara have the same number of comic books?

   Let m = the number of months; $45 + 4m = 61 + 2m$; 8 months

2. A fish tank has 150 gallons of water and is being drained at a rate of $\frac{1}{2}$ gallon each second. A second fish tank has 120 gallons of water and is being filled at a rate of $\frac{1}{4}$ gallon each second. After how many seconds will the two fish tanks have the same amount of water?

   Let s = the number of seconds; $150 - \frac{1}{2}s = 120 + \frac{1}{4}s$; 40 seconds

3. Shipping Company A charges $14 plus $2.25 a pound to ship overnight packages. Shipping Company B charges $20 plus $1.50 a pound to ship an overnight package. For what weight is the charge the same for the two companies?

   Let p = the number of pounds; $14 + 2.25p = 20 + 1.50p$; 8 pounds

4. A bicycle rental company charges a $20 fee plus $5.50 per hour to rent a bicycle. Another bicycle rental company charges a $15 fee plus $6.50 per hour to rent a bicycle. For what number of hours is the cost for the rental the same?

   Let h = the number of hours; $20 + 5.50h = 15 + 6.50h$; 5 hours

13. Solve multi-step linear equations with rational coefficients by using the Distributive Property and combining like terms

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Practice

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Solve each equation. Check your solution. (Examples 1–3)

1. $-g + 2(3 + g) = -4(g + 1)$ **−2**

2. $-8 - x = -3(2x - 4) + 3x$ **10**

3. $0.6(4 - 2x) = 20.5 - (3x + 10)$ **4.5**

4. $12 - (4y + 8) = 0.5(8y - 16)$ **1.5**

5. $\frac{1}{2}(-4 + 6n) = \frac{1}{3}n + \frac{2}{3}(n + 9)$ **4**

6. $\frac{1}{5}(5x - 5) + 3x = -9\left(\frac{1}{3}x + 4\right)$ **−5**

14. Write and solve multi-step linear equations with rational coefficients by using the Distributive Property and combining like terms

Name _____ Period _____ Date _____

Practice

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Write and solve an equation for each exercise. Check your solution.
(Examples 1 and 2)

1. Mr. Reed is drawing a blueprint of a rectangular patio. The width of the patio is $40\frac{3}{4}$ feet shorter than twice its length. The perimeter of the patio is $86\frac{1}{2}$ feet. What is the length of the patio?

Let ℓ = the length; $86\frac{1}{2} = 2\ell + 2\left(2\ell - 40\frac{3}{4}\right)$; 28 feet

2. The Yearbook Club is going to an amusement park, and each of their 12 members will pay for admission and will also help pay for parking. The Robotics Club is going to a waterpark, and each of their 14 members will pay for admission and will also purchase a meal ticket. Admission to the amusement park is 1.5 times that of the waterpark's admission, as shown in the table. If the total cost is the same at both the amusement park and the waterpark, what is the admission per student to the waterpark?

Amusement Park	Waterpark
Admission: 1.5x$ per student	Admission: $$x$ per student
Parking: $2 per student	Meal Ticket: $10.50 per student

Let x = the cost of admission to the waterpark;
$12(1.5x + 2) = 14(x + 10.5)$; $30.75

Test Practice

3. Open Response Arjun purchased 5 tickets to a play, each with the same price. He was also charged an online service fee of $3.50 per ticket. Emilia purchased 3 tickets to the same play and paid twice as much for her tickets as Arjun. Emilia was also charged a service fee of $2.75 per ticket. If they spent the same amount, what is the cost of each of the tickets Arjun purchased? Let t represent the cost of each of Arjun's tickets.

Equation: $5(t + 3.5) = 3(2t + 2.75)$

Cost of a Ticket: $9.25

15. Identify the number of solutions of a linear equation in one variable by simplifying each side and comparing coefficients and constants

Name _____ Period _____ Date _____

Practice

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Solve each equation. Determine whether the equation has one solution, no solution, or infinitely many solutions. (Examples 1 and 2)

1. $4(x - 8) + 12 = 2(2x - 9)$

no solution

2. $3(2k - 5) = 6(k - 4) + 9$

infinitely many solutions

3. $-4y - 3 = \frac{1}{3}(12y - 9) - 8y$

infinitely many solutions

4. $6(3 - 5w) = 5(4 - 2w) - 20w$

no solution

Complete each equation so that it has infinitely many solutions. (Example 3)

5. $2x - 7(x + 10) =$ [−5] $x -$ [70]

6. $12x - x + 8 + 3x =$ [14] $x +$ [8]

Complete each equation so that it has no solution. (Example 4) Sample constants are given.

7. $-15x + 4x + 2 - x =$ [−12] $x +$ [6]

8. $9(x - 4) - 5x =$ [4] $x -$ [10]

Test Practice

9. Multiple Choice Which of the following explains why $\frac{2}{3}(x + 3) = \frac{2}{3}(x - 6)$ has no solution?

Ⓐ The coefficients are different, and the constants are different.

Ⓑ The coefficients are the same, and the constants are the same.

Ⓒ The coefficients are different, and the constants are the same.

Ⓓ The coefficients are the same, and the constants are different.

16. Identify the slope of a line and interpret it as the rate of change within the context of the problem

Name _____ Period _____ Date _____

Practice

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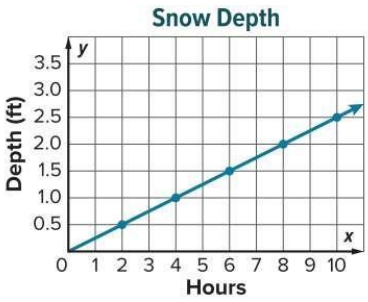
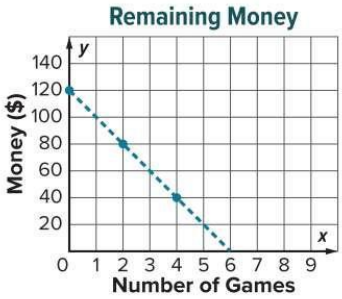
1. The graph shows the depth in feet of snow after each two-hour period during a snowstorm. Find the slope of the line. (Example 1) $\frac{1}{4}$ or 0.25



2. The graph shows the amount of money left after buying video games. Find the slope of the line. (Example 2) −20



3. The points given in the table lie on a line. Find the slope of the line. (Example 3) $-\frac{4}{3}$ or $-1.\overline{3}$

x	−1	2	5	8
y	3	−1	−5	−9

Find the slope of the line that passes through each pair of points. (Examples 4–6)

4. $M(3, 5)$, $N(2, 6)$
−1

5. $G(-3, 2)$, $H(7, 2)$
0

6. $E(6, 8)$, $F(6, -2)$
undefined

Test Practice

7. Multiple Choice The points given in each table lie on lines. Which table, when graphed, would show a negative slope?

Ⓐ

x	−2	3	8	13
y	−2	−1	0	1

Ⓒ

x	3	5	6	8
y	8	0	−4	−12

Ⓑ

x	−1	1	3	5
y	−2	0	2	4

Ⓓ

x	−13	−9	−5	−1
y	−4	−2	0	2

17. Identify similar triangles that fall on the same line in a coordinate plane and show that the slopes of the lines are equal

Name _____ Period _____ Date _____

Practice

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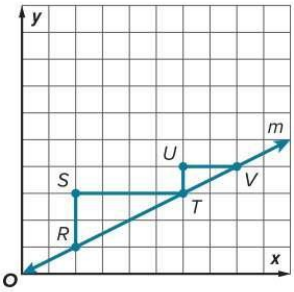
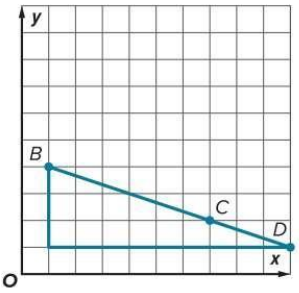
1. The graph of line m is shown. Use the similar slope triangles to compare the slope of segment RT and TV. (Example 1)



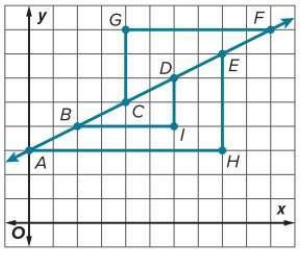
The slope of segment RT is $\frac{1}{2}$ or 0.5. The slope of segment TV is $\frac{1}{2}$ or 0.5. The slopes of each segment are equal.

2. The plans for a zipline are shown. Use two points to determine the slope of the zipline. Then verify that the slope is the same by choosing a different set of points. (Example 2)



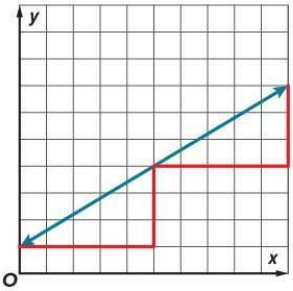
The slope of the zipline is $-\frac{1}{3}$ or $-0.\overline{3}$.

3. Name the slope triangles shown in the graph. What is the slope of the line?



Triangles AHE, BID, and CGF. The slope of each is $\frac{1}{2}$ or 0.5.

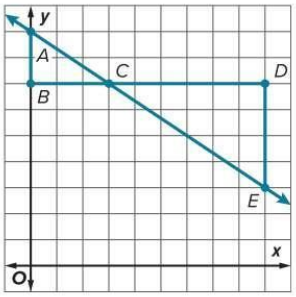
4. Draw two slope triangles on the line. Determine the slope of the line.



$\frac{3}{5}$ or 0.6; Sample slope triangles shown.

Test Practice

5. Multiselect The graph shows similar slope triangles on a line. Select all of the statements that are true.



- [x] The slope of the line is negative.
- [x] The slopes of each triangle are the same because they lie on the same line.
- [ ] Triangle CDE has a greater slope because the triangle is larger.
- [ ] The slope of each triangle is $\frac{2}{3}$.
- [ ] The slope of the line is positive.

18. Write equations of the form y = mx + b when given a table, graph, or verbal description

Name _____ Period _____ Date _____

Practice

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Identify the slope and y-intercept of the graph of each equation. (Example 1)

1. $y = \frac{1}{2}x - 5$
   slope: $\frac{1}{2}$; y-intercept: -5

2. $y = 3x - 1$
   slope: 3; y-intercept: -1

Write the equation of a line in slope-intercept form with each slope and y-intercept. (Example 2)

3. slope $= -\frac{1}{3}$, y-intercept $= 4$
   $y = -\frac{1}{3}x + 4$

4. slope $= \frac{3}{2}$, y-intercept $= -3$
   $y = \frac{3}{2}x - 3$

5. slope $= 4$, y-intercept $= -2$
   $y = 4x - 2$

6. slope $= -1$, y-intercept $= 6$
   $y = -x + 6$

19. Write equations of the form y = mx + b when given a table, graph, or verbal description

Name _____ Period _____ Date _____

Practice

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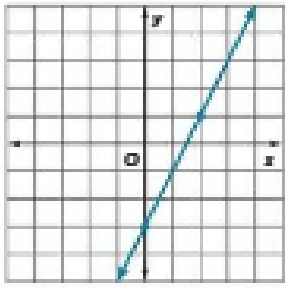
7. Write an equation in slope-intercept form for the graph shown. (Example 3)



$y = 2x - 3$

8. The Augello family is driving from Columbus to St. Louis at a constant rate of 65 miles per hour. The distance between the two cities is 420 miles. Write an equation in slope-intercept form to represent the distance y in miles remaining after driving x hours. (Example 4)

$y = -65x + 420$

9. The table shows the costs for art show participants, including the $30 registration fee. Write an equation in slope-intercept form that represents the data in the table. (Example 5) $y = 30x + 30$

Number of Pieces of Art	Cost ($)
0	30
2	90
4	150
6	210
8	270

Test Practice

10. **Multiselect** Select all of the statements that are true about the equation $y = -\frac{3}{5}x + 8$.

- [x] The slope of the line is negative.
- [ ] The slope of the line is 8.
- [x] The y-intercept of the line is 8.
- [ ] The y-intercept of the line is $-\frac{3}{5}$.
- [x] The slope of the line is $-\frac{3}{5}$.

20. Interpret the slope and y-intercept of a line from an equation of the form y = mx + b in order to graph the line on the coordinate plane

Name _____ Period _____ Date _____

Practice

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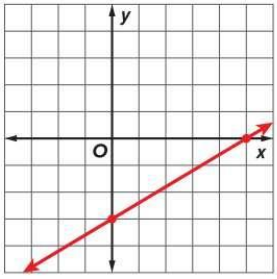
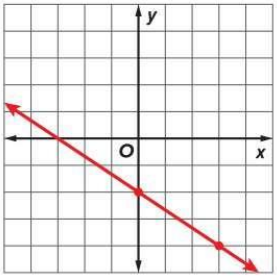
Graph each equation using the slope and *y*-intercept. (Example 1)

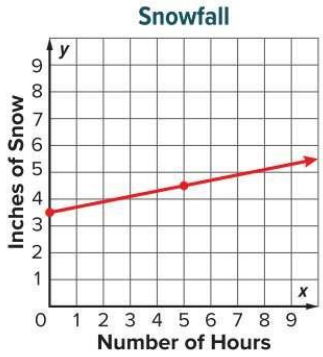
1. $y = \frac{3}{5}x - 3$



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



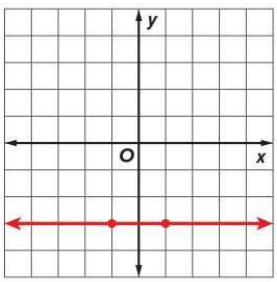
3. The equation $y = \frac{1}{5}x + 3.5$ can be used to find the amount of accumulated snow y in inches x hours after 5 P.M. on a certain day. Graph this equation. (Example 2)



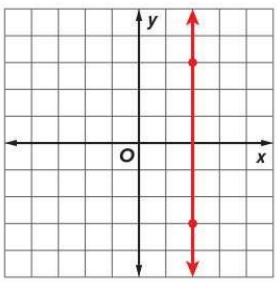
4. Alliyah's gift card balance can be represented by the equation $y = -5x + 50$, where y represents the gift card balance after x number of days. Graph this equation. (Example 2)

Graph each equation. (Examples 3 and 4)

5. $y = -3$



6. $x = 2$



الأسئلة المقالية FRQ

21 - Use integer exponents to show repeated multiplication of rational numbers

Name _____ Period _____ Date _____

Practice

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Write each expression using exponents. (Examples 1 and 2)

1. $(-7) \cdot (-7) \cdot 5 \cdot 5 \cdot 5 \cdot 5 =$ $(-7)^2 \cdot 5^4$

2. $n \cdot n \cdot p \cdot p \cdot r \cdot r \cdot r =$ $n^2 \cdot p^2 \cdot r^3$

Evaluate each numerical expression. (Example 3)

3. $3^4 - (-4)^2 =$ 65

4. $6 + 2^6 =$ 70

5. Evaluate $x^3 - y^2$ if $x = 2$ and $y = \frac{3}{4}$. (Example 4)

$7\frac{7}{16}$

6. Evaluate $(g + h)^3$ if $g = 2$ and $h = -3$. (Example 5)

-1

7. Replace ☐ with <, >, or = to make a true statement: $(-3)^4$ ☐ $(-4)^3$.

>

Test Practice

8. A scientist estimates that, after a certain amount of time, there would be $2^5 \cdot 3^3 \cdot 10^5$ bacteria in a Petri dish. How many bacteria is this?

86,400,000

9. **Multiselect** Select all of the expressions that evaluate to negative rational numbers.

- ☐ $(-9)^4$
- ☑ $\left(-\frac{4}{5}\right)^3$
- ☑ $3^5 - 10^4$
- ☑ $(9.8)^2 - 10^2$
- ☐ $\left(-\frac{3}{8}\right)^2$

22 - **Identify irrational numbers and name the set(s) of real numbers to which a given real number belongs**

Name _____ Period _____ Date _____

Practice

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Identify whether each number is *rational* or *irrational*. (Example 1)

1. $-\sqrt{10}$ irrational
2. $-\frac{3}{11}$ rational
3. $0.\overline{3}$ rational
4. $\sqrt{81}$ rational
5. 0 rational
6. $-\frac{\sqrt{2}}{2}$ irrational
7. $\sqrt{7}$ irrational
8. $\frac{\sqrt{2}}{\sqrt{2}}$ rational

Select all the sets of numbers to which each real number belongs. (Examples 2–4)

9. $\sqrt[3]{343}$
   - (A) Rational
   - (B) Irrational
   - (C) Integer
   - (D) Whole
   - (E) Natural

10. $\frac{7}{\sqrt{2}}$
    - (A) Rational
    - (B) Irrational
    - (C) Integer
    - (D) Whole
    - (E) Natural

11. $-\frac{7}{1}$
    - (A) Rational
    - (B) Irrational
    - (C) Integer
    - (D) Whole
    - (E) Natural

23 - **Use rational approximations to compare and order real numbers, including irrational numbers**

Name _____ Period _____ Date _____

Practice

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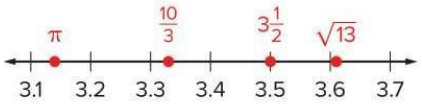
5. Order the set $\left\{3\frac{1}{2}, \frac{10}{3}, \pi, \sqrt{13}\right\}$ from least to greatest. Then graph the set on the number line. (Example 3)

$\left\{\pi, \frac{10}{3}, 3\frac{1}{2}, \sqrt{13}\right\}$



6. The table shows the foul-shot statistics for three players in a recent basketball game. Which player had the greatest foul-shot statistic? (Example 4)

Player	Foul-Shot Statistic
1	$\frac{7}{9}$
2	72%
3	8 out of 10

Player 3

Test Practice

7. **Multiple Choice** Select the symbol that makes the sentence true.

$\sqrt{27} \_\_ \frac{\sqrt{95}}{2}$

Ⓐ <

Ⓑ >

Ⓒ =

Ⓓ ≤

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24 - **Use the properties of equality to solve equations with variables on each side that have rational coefficients**

Name _____ Period _____ Date _____

Practice

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Solve each equation. Check your solution. (Examples 1–3)

1. $-2a - 9 = 6a + 15$ **−3**

2. $14 + 3n = 5n - 6$ **10**

3. $\frac{1}{2}x - 5 = 10 - \frac{3}{4}x$ **12**

4. $\frac{2}{3}y + 1 = \frac{1}{6}y + 8$ **14**

5. $5.4p + 13.1 = -2.6p + 3.5$ **−1.2**

6. $0.15w + 0.35 = 0.22w - 0.14$ **7**

Test Practice

7. Twelve more than seven times a number equals the number less six. Solve the equation $7x + 12 = x - 6$ to find the number, x.

−3

8. **Equation Editor** Solve the equation shown for x.

$3x - 15 = 17 - x$

8

1 2 3
4 5 6
7 8 9
0 . −

25 - **Graph and compare proportional relationships using words, equations, and tables and interpret the unit rate as the slope of the line**

Name _____ Period _____ Date _____

Practice

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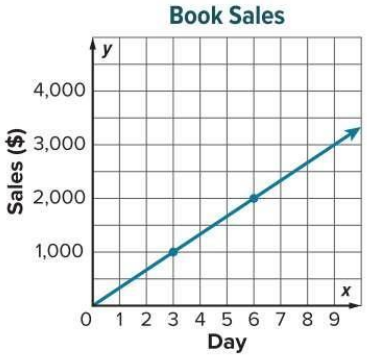
1. The graph shows the amount of book sales over several days. Find and interpret the slope. Then find the unit rate and compare it to the slope. (Example 1)

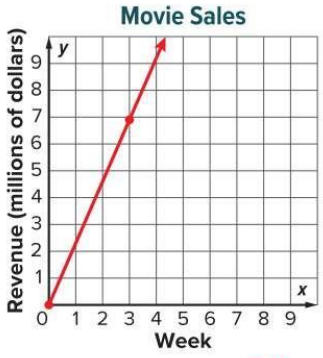


The slope of the line is $\frac{333.3\overline{3}}{1}$ or $333.3\overline{3}$. This means the book sales were about $333.33 each day. The unit rate is about $333.33 per day, which is the same as the slope.

2. The cost y of renting a snowmobile for x hours is a proportional relationship. This can be represented by the equation $y = 33.75x$. Graph the equation. Then find and interpret the slope. (Example 2)

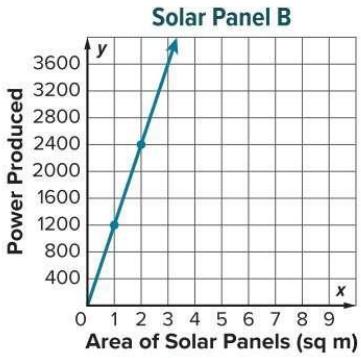
The slope of the line is $\frac{33.75}{1}$ or 33.75. This means that it costs $33.75 per hour to rent the snowmobile.

3. By the end of its fourth week, a movie had grossed $9.2 million. Assume the revenue y in millions of dollars is proportional to the week x. Graph this relationship on the coordinate plane. Then find and interpret the slope. (Example 3)



The slope of the line is $\frac{2.3}{1}$ or 2.3. This means that the movie grossed $2.3 million each week.

4. The amount of power y solar panel A can produce with an area of x square meters can be represented by the equation $y = 1{,}020x$. The amount of power a solar panel B can produce is shown on the graph. Which solar panel can produce more power? Explain. (Example 4)



Solar panel B; The rate for panel A is 1,020. The rate for panel B is 1,200. Since $1{,}200 > 1{,}020$, panel B produces more power.