



وزارة التربية والتعليم
MINISTRY OF EDUCATION

Reavel Coverage Grade 8 GEN First Term of 2025- 2026

إحجز مكانك واستعد للامتحان بثقة كاملة

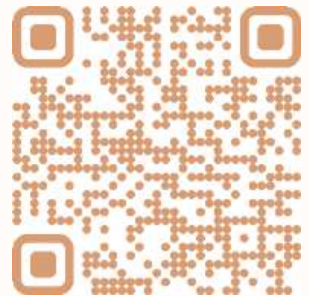
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اضغط على الرقم: 0566991363



Mr. Aghead

للتواصل والحجز



للانتقال إلى المواقع
اضغط هنا

شرح الدروس



انضم للقناة



للتواصل اضغط الرقم:
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Mr. Aghead

يمكنكم الحصول على

بـ 99
درهم فقط

احصل على شرح مفصل للهيكل كامل



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Question 1: Use the Laws of Exponents to multiply
and divide monomials with common bases
(Page 23)

MCQ - Objective questions



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

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

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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)

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

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Test Practice

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

The image shows a digital equation editor interface. At the top, there is a text input field containing the problem: "9. Equation Editor Simplify $\frac{\sigma^4 c^6}{\sigma^2 c}$." Below this is a large, empty rectangular box for the user's answer. Underneath the box is a keypad with various mathematical symbols and numbers. The keypad includes a row of navigation buttons (left arrow, right arrow, undo, redo, and a square icon), followed by a grid of buttons for digits 1-9, 0, decimal point, and negative sign. It also includes buttons for basic operations (+, -, ×, ÷), comparison operators (<, ≤, =, ≥, >), and advanced mathematical functions (fraction $\frac{\square}{\square}$, power x^N , parentheses, absolute value $||$, square root $\sqrt{x}$, nth root $\sqrt[n]{x}$, and pi π).

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Question 2: Use the Laws of Exponents to multiply and divide monomials with common bases (Page 23)

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1. $3^8 \cdot 3 =$ _____

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

3. $3m^3n^2 \cdot 8mn^3 =$ _____

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

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Question 3: Use the Power of a Power Property and the Power of a Product Property to simplify expressions with integer exponents (Page 32 , 31)

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5. $(2m^5)^6 =$ _____

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6. $(7a^5b^6)^4 =$ _____

7. $(-3w^3z^8)^5 =$ _____

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8. $(-5r^4s^{10})^4 =$ _____

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9. Which is greater: 1,000 or $(6^2)^3$? Explain.

Test Practice

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

- ☐ $(x^3y^4)^2$
- ☐ $(x^2y)^2$
- ☐ $(x^3)^2y^6$
- ☐ $x^6(y^4)^2$
- ☐ $(x^3)^2(y^2)^4$

Apply

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?

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?

Question 4: Use the Zero Exponent Rule and the Quotient of Powers Property to simplify expressions with zero and negative integer exponents (Page 41)

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Simplify each expression. (Example 1)

1. $46^0 =$ _____

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

Express each using a positive exponent.

(Example 2)

3. $8^{-4} =$ _____

4. $y^{-9} =$ _____

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

5. $\frac{1}{a^6} =$ _____

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

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Simplify each expression. (Examples 4 and 5)

7. $9^4 \cdot 9^{-6} =$ _____

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8. $y^{-9} \cdot y^3 =$ _____

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

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

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Question 5: Write very large and very small numbers using scientific notation(Page 53)

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

1. $1.6 \times 10^3 =$ _____

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

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

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

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

5. $2,204,000,000 =$ _____

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6. $0.0000000642 =$ _____

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Question 6: Show how the decimal form of
a rational number repeats eventually
(Page 77)

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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. $-\frac{11}{16} =$ _____

2. $\frac{5}{33} =$ _____

3. $4\frac{3}{8} =$ _____

4. $-9\frac{11}{30} =$ _____

Question 7: Convert a repeating decimal
into a rational number (Page 77)

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Write each decimal as a fraction or mixed number in simplest form. (Examples 3 and 4)

5. $0.\overline{8} =$ _____

6. $-0.\overline{18} =$ _____

7. $-1.\overline{5} =$ _____

8. $4.\overline{45} =$ _____

Question 8: Find square and cube roots (Page 89)

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

1. $\sqrt{361} = \underline{\hspace{2cm}}$

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2. $\pm\sqrt{1.96} = \underline{\hspace{2cm}}$

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3. $-\sqrt{\frac{9}{16}} = \underline{\hspace{2cm}}$

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

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

Simplify using rational numbers. (Examples 6 and 7)

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

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

Question 9: Use square and cube roots to solve equations involving perfect squares and cubes
(Page 89)

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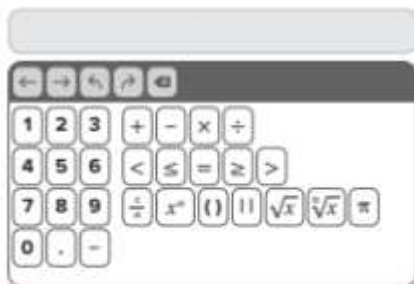
8. A basin of a water fountain is cube shaped and has a volume of 91.125 cubic feet. Solve $s^3 = 91.125$ to find the length s of one side of the basin. (Example 8)

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?

Test Practice

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

$$p^3 = -0.027$$



Question 10: Estimate irrational numbers by approximating their locations on a number line or by truncating their decimal expansions (Page 109)

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

1. $\sqrt{125} \approx$ _____

2. $\sqrt{55} \approx$ _____

3. $\sqrt[3]{70} \approx$ _____

4. $\sqrt[3]{923} \approx$ _____

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

5. $\sqrt{296} \approx$ _____

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6. $\sqrt{5} \approx$ _____

7. $\sqrt{11} \approx$ _____

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8. $\sqrt{62} \approx$ _____

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Question 11: Use rational approximations to compare and order real numbers, including irrational numbers (Page 121)

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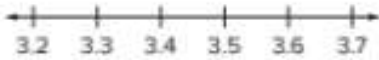
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Complete each statement using $<$, $>$, or $=$. Then graph the numbers on the number line. (Examples 1 and 2)

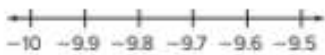
1. $\sqrt{11}$ _____ $3\frac{2}{3}$



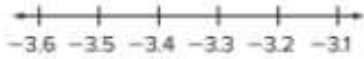
2. $\sqrt{3}$ _____ $\frac{\sqrt{10}}{2}$



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)



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

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

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

- (A) $<$
- (B) $>$
- (C) $=$
- (D) $\leq$

Question 12: Write linear equations in one variable with rational coefficients and use the properties of equality to solve them (Page 143)

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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?

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?

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?

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?

Question 13: Solve multi-step linear equations with rational coefficients by using the Distributive Property and combining like terms (Page 149)

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Solve each equation. check your solution.

1. $-g + 2(3 + g) = -4(g + 1)$

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

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

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

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

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

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Question 14: Write and solve multi-step linear equations with rational coefficients by using the Distributive Property and combining like terms (Page 157)

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Write and solve an equation for each exercise. check you solution.

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?

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

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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:

Cost of a Ticket:

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Question 15: Identify the number of solutions of a linear equation in one variable by simplifying each side and comparing coefficients and constants (Page 167)

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

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

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

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

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

5. $2x - 7(x + 10) = \square x - \square$

6. $12x - x + 8 + 3x = \square x + \square$

Complete each equation so that it has no solution. (Example 4)

7. $-15x + 4x + 2 - x = \square x + \square$

8. $9(x - 4) - 5x = \square x - \square$

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

- (A) The coefficients are different, and the constants are different.
- (B) The coefficients are the same, and the constants are the same.
- (C) The coefficients are different, and the constants are the same.
- (D) The coefficients are the same, and the constants are different.

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Question 16: Identify the slope of a line and interpret it as the rate of change within the context of the problem (Page 203)

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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)



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



3. The points given in the table lie on a line. Find the slope of the line. (Example 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. $M(3, 5), N(2, 6)$

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

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

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

(A)

x	-2	3	8	13
y	-2	-1	0	1

(C)

x	3	5	6	8
y	8	0	-4	-12

(B)

x	-1	1	3	5
y	-2	0	2	4

(D)

x	-13	-9	-5	-1
y	-4	-2	0	2

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Question 17: Identify similar triangles that fall on the same line in a coordinate plane and show that the slopes of the lines are equal (Page 211)

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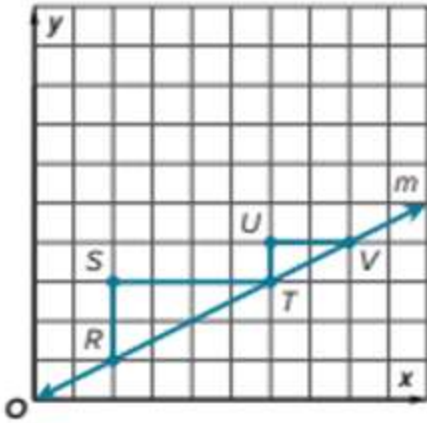
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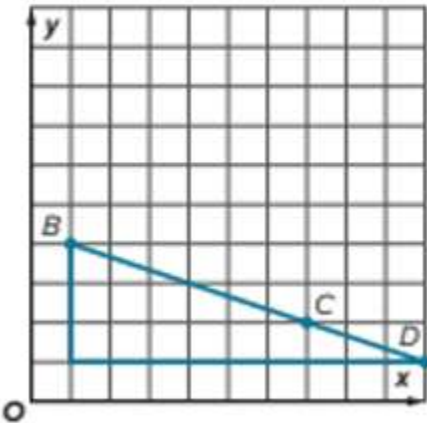


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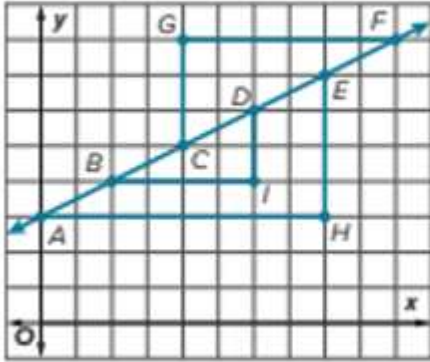
1. The graph of line m is shown. Use the similar slope triangles to compare the slope of segment RT and TV . (Example 1)



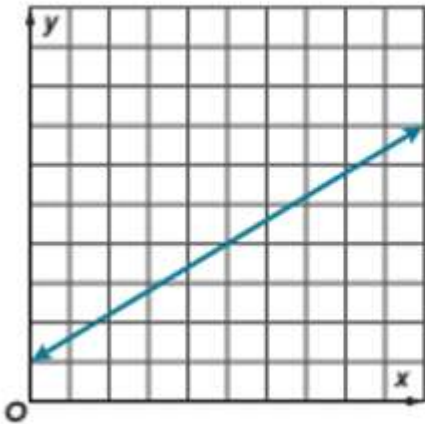
2. The plans for a zipline are shown. Use two points to determine the slope of the zipline. Then verify that the slope is the same by choosing a different set of points. (Example 2)



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

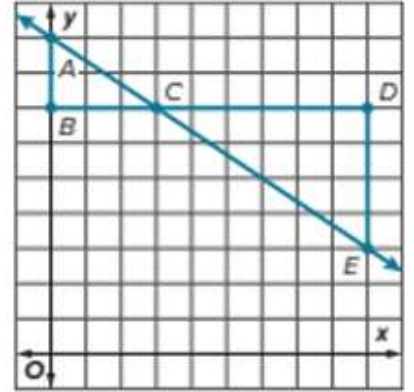


4. Draw two slope triangles on the line. Determine the slope of the line.



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

- ☐ The slope of the line is negative.
- ☐ 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.



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Question 18: Write equations of the form $y = mx + b$ when given a table, graph, or verbal description (Page 235)

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Identify the slope and y-intercept of the graph of each equation.

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

2. $y = 3x - 1$

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

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

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

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

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6. slope = -1, y-intercept = 6

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Question 19: Write equations of the form $y = mx + b$ when given a table, graph, or verbal description (Page 235)

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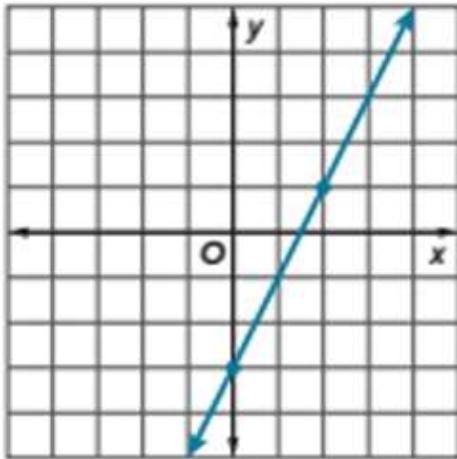


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7. Write an equation in slope-intercept form for the graph shown. (Example 3)



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)

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)

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

Question 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 (Page 245)

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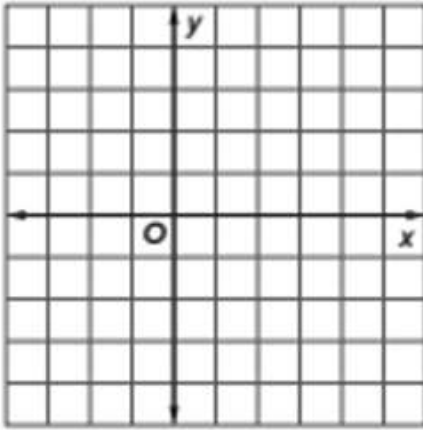
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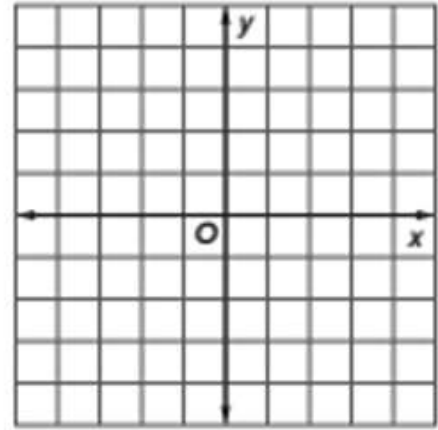
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Graph each equation using the slope and y-intercept. (Example 1)

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



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



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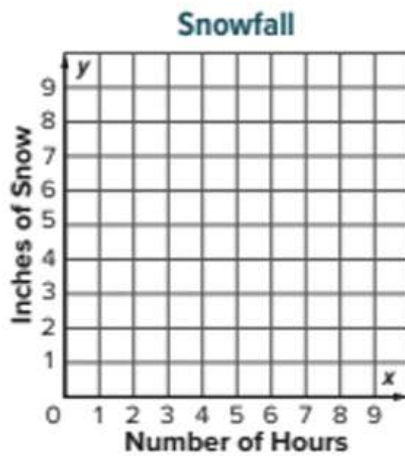
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3. The equation $y = \frac{1}{5}x + 3.5$ can be used to find the amount of accumulated snow y in inches x hours after 5 P.M. on a certain day. Graph this equation. (Example 2)

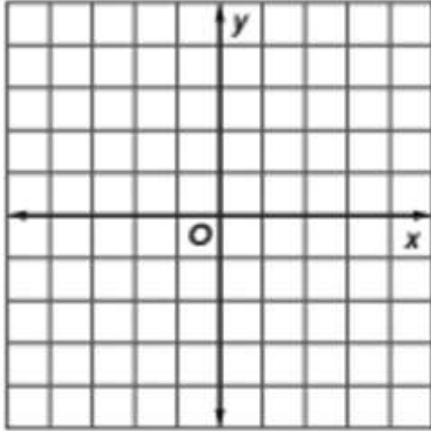


4. Alliyah's gift card balance can be represented by the equation $y = -5x + 50$, where y represents the gift card balance after x number of days. Graph this equation. (Example 2)

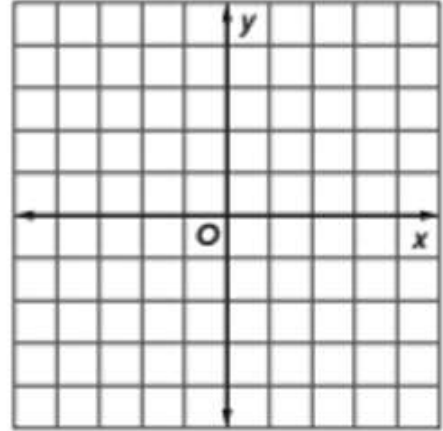


Graph each equation. (Examples 3 and 4)

5. $y = -3$



6. $x = 2$



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Question 21: Use integer exponents to show repeated multiplication of rational numbers
(Page 11)

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

1. $(-7) \cdot (-7) \cdot 5 \cdot 5 \cdot 5 \cdot 5 =$ _____

2. $n \cdot n \cdot p \cdot p \cdot r \cdot r \cdot r =$ _____

Evaluate each numerical expression. (Example 3)

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

4. $6 + 2^6 =$ _____

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

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

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

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?

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

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

Question 22: Identify irrational numbers and name the set(s) of real numbers to which a given real number belongs (Page 99)

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

1. $-\sqrt{10}$

2. $-\frac{3}{11}$

3. $0.\overline{3}$

4. $\sqrt{81}$

5. 0

6. $-\frac{\sqrt{2}}{2}$

7. $\sqrt{7}$

8. $\frac{\sqrt{2}}{\sqrt{2}}$

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

Question 23: Use rational approximations to compare and order real numbers, including irrational numbers (Page 121)

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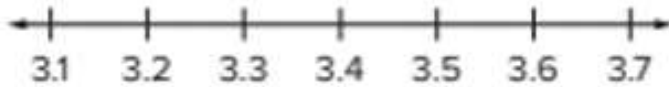
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5. Order the set $\left\{3\frac{1}{2}, \frac{10}{3}, \pi, \sqrt{13}\right\}$ from least to greatest. Then graph the set on the number line. (Example 3)



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

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

$$\sqrt{27} \text{ — } \frac{\sqrt{95}}{2}$$

- (A) <
- (B) >
- (C) =
- (D) ≤

Question 24: Use the properties of equality to solve equations with variables on each side that have rational coefficients (Page 135)

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

1. $-2a - 9 = 6a + 15$

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

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

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

5. $5.4p + 13.1 = -2.6p + 3.5$

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

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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 .

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

$$3x - 15 = 17 - x$$

The image shows a digital equation editor interface. At the top is a long, empty rectangular text input field. Below it is a numeric keypad with a dark header bar containing five navigation icons: left arrow, right arrow, undo, redo, and delete. The keypad itself consists of a grid of buttons: the first row has digits 1, 2, 3; the second row has 4, 5, 6; the third row has 7, 8, 9; and the fourth row has 0, a decimal point, and a negative sign.

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Question 25: Graph and compare proportional relationships using words, equations, and tables and interpret the unit rate as the slope of the line (Page 189)

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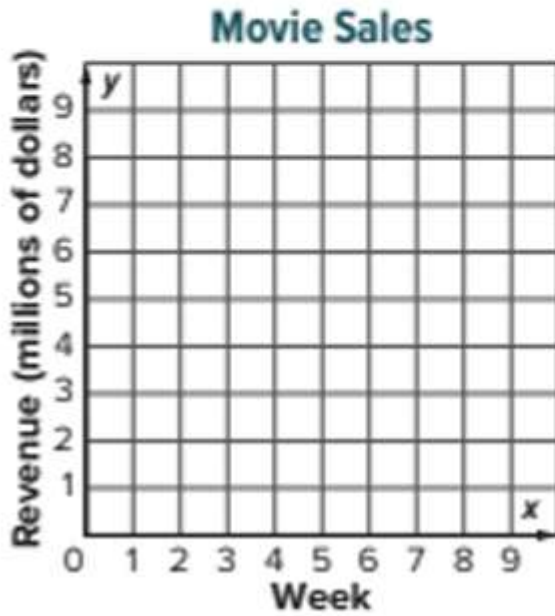
1. The graph shows the amount of book sales over several days. Find and interpret the slope. Then find the unit rate and compare it to the slope. (Example 1)



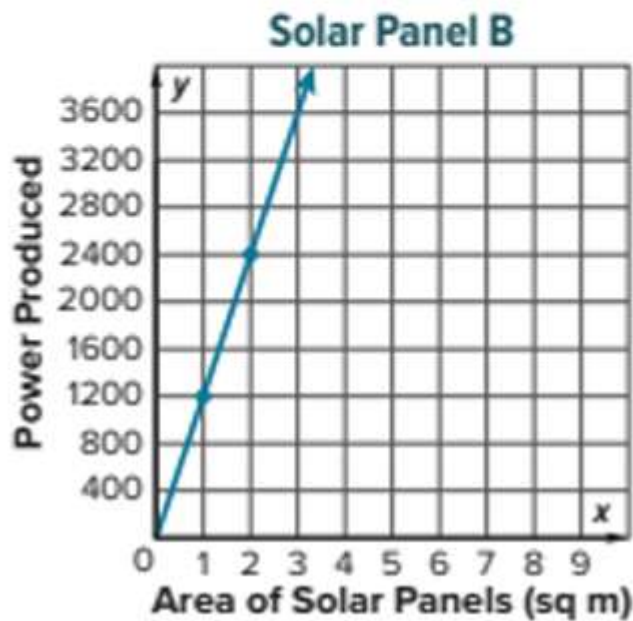
2. The cost y of renting a snowmobile for x hours is a proportional relationship. This can be represented by the equation $y = 33.75x$. Graph the equation. Then find and interpret the slope. (Example 2)

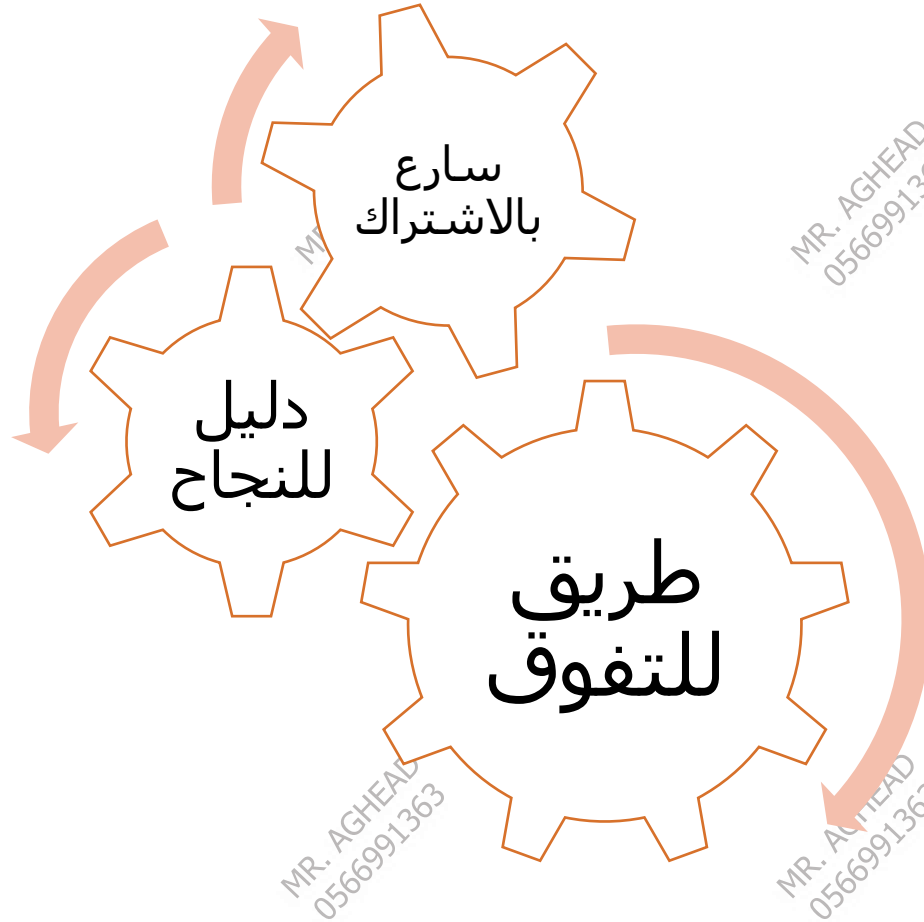


3. By the end of its fourth week, a movie had grossed \$9.2 million. Assume the revenue y in millions of dollars is proportional to the week x . Graph this relationship on the coordinate plane. Then find and interpret the slope. (Example 3)



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)





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