تجميعة أسئلة وفق الهيكل الوزاري الجديد منهج ريفيل

تم تحميل هذا الملف من موقع المناهج الإماراتية
موقع المناهج ⇦ المناهج الإماراتية ⇦ الصف العاشر العام ⇦ رياضيات ⇦ الفصل الأول ⇦ ملفات متنوعة ⇦ الملف
تاريخ إضافة الملف على موقع المناهج: 17-10-2025 23:30:48
المزيد من مادة رياضيات: ملفات ا كتب للمعلم ا كتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي ا للمدرس
إعداد: مصطفى عبد العزيز

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

المزيد من الملفات بحسب الصف العاشر العام والمادة رياضيات في الفصل الأول	
1	الهيكل الوزاري الجديد منهج ريفيل 2025
2	الدروس التي تم تحويلها إلى دروس إثرائية للعام 2025-2026
3	مقرر الدروس المطلوبة الفصل الأول منهج بريدج
4	أسئلة الامتحان النهائي منهج بريدج القسم الورقي للعام 2024-2025
5	حل أسئلة اختبار تجريبي وفق الهيكل الوزاري منهج بريدج

وزارة التربيـــــــة والتعـــــــليم

مدرسـة الحصــن للتعليم الثانوي

أسئلة الهيكل

للصف العاشر عام

رياضيـــــــــــــــات

الفصل الأول 2025-2026

كلنا ناجحون بإذن الله

الأستاذ. مصطفى عبد العزيز
مدرسة الحصـن للتعليم الثانوي

اسم الطالب/ ----------

الشعبة / ----------

أسئلة الهيكل للصف العاشر عام

الفصل الأول للعام الدراسي 2025-2026

الأسئلة الموضـــــوعية – الكتروني

1	Add and subtract polynomials	15-34	P 635-636

Find each sum or difference

15. $(2x + 3y) + (4x + 9y)$

17. $(5a + 9b) - (2a + 4b)$

26. $(2x + 3x^2) - (7 - 8x^2)$

23. $(5f + g - 2) + (-2f + 3)$

29. $(2x - 2y + 1) - (3y + 4x)$

30. $(4a - 5b^2 + 3) + (6 - 2a + 3b^2)$

34. $(4rxt - 8r^2x + x^2) - (6rx^2 + 5rxt - 2x^2)$

2	Multiply binomials by using FOIL method	1-12, 24-41	P649-650

Find each product

1. $(3c - 5)(c + 3)$

3. $(6a + 5)(5a + 3)$

5. $(5y - 4)(3y - 1)$

9. $(12t - 5)(12t + 5)$

11. $(8w + 4x)(5w - 6x)$

12. $(11z - 5y)(3z + 2y)$

24. $(m + 4)(m + 1)$

25. $(x + 2)(x + 2)$

33. $(2\ell + 5)(\ell - 4)$

40. $(4h - 2)(4h - 1)$

41. $(x - y)(2x - y)$

3	Find squares of sums and differences	1-10, 36-46	P657-658

Find each product.

1. $(a + 10)(a + 10)$

2. $(b - 6)(b - 6)$

3. $(h + 7)^2$

6. $(9 - 2y)^2$

7. $(2b + 3)^2$

8. $(5t - 2)^2$

9. $(8h - 4n)^2$

36. $(c - d)^2$

43. $(3y - 3g)(3y + 3g)$

45. $(2k + m^2)^2$

46. $(3t^2 - n)^2$

4	Factor polynomials by using the Distributive property	7-10	P 665

7.PHYSICS The distance d an object falls after t seconds is given by $d = 16t^2$ (ignoring air resistance). To find the height of an object launched upward from ground level at a rate of 32 feet per second, use the expression $32t - 16t^2$, where t is the time in seconds. Factor the expression.

8. SWIMMING POOL The area of a rectangular swimming pool is given by the expression $12w - w^2$, where w is the width of one side. Factor the expression.

10. Conner is playing with his dog. He tosses a treat upward with an initial velocity of 13.7 meters per second. His hand starts at the same height as the dog's mouth, so the height of the treat above the dog's mouth in meters after t seconds is given by the expression $13.7t - 4.9t^2$. Factor the expression

5	Factor trinomials of the form ax^2+bx+c	21-36	P671

Factor each polynomial, if possible. If the polynomial cannot be factored using integers, write prime.

21. $5x^2 + 34x + 24$

23. $4x^2 + 22x + 10$

25. $2x^2 - 3x - 9$

29. $12x^2 + 69x + 45$

31. $3x^2 - 8x + 15$

35. $2y^2 + y - 1$

36. $4h^2 + 8h - 5$

6	Factorize binomials that are the difference of squares	1-14	P679

Factor each polynomial

1. $q^2 - 121$

2. $r^4 - k^4$

3. $w^4 - 625$

4. $r^2 - 9t^2$

5. $h^4 - 256$

6. $2x^3 - x^2 - 162x + 81$

7. $x^2 - 4y^2$

8. $3c^3 + 2c^2 - 147c - 98$

9. $f^3 + 2f^2 - 64f - 128$

12. $a^2 - 49$

13. $4m^3 + 9m^2 - 36m - 81$

14. $3x^3 + x^2 - 75x - 25$

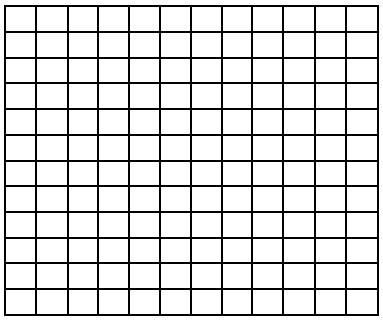
7	Find and interpret the maximum and minimum values of a quadratic function	23–26	P697

23. STRUCTURE Consider the quadratic function $y = -x^2 - 2x + 2$.

a. Find the equation for the axis of symmetry.

b. Find the coordinates of the vertex and determine if it is a maximum or minimum.

c. Graph the function.



Identify the axis of symmetry, the vertex, and the y-intercept of each graph. Then describe the end behavior.

24. $\boldsymbol{y = 2x^2 - 8x + 6}$

25. $\boldsymbol{y = x^2 + 4x + 6}$

26. $\boldsymbol{y = -3x^2 - 12x + 3}$

8	Transform graphs of quadratic functions of the form $y = a(x - h)^2 + k$	21-32	P707-708

Describe how the graph of each function is related to the graph of the parent function.

21. $g(x) = -6x^2$

22. $g(x) = (-9x)^2$

23. $g(x) = -\frac{1}{3}x^2$

24. $g(x) = \left(-\frac{2}{3}x\right)^2$

25. $g(x) = -2x^2$

26. $g(x) = \left(-\frac{6}{5}x\right)^2$

Describe how the graph of each function is related to the graph of the parent function.

27. $h(x) = -7 - x^2$

28. $g(x) = 2(x - 3)^2 + 8$

29. $h(x) = 6 + \frac{2}{3}x^2$

30. $g(x) = -5 - \frac{4}{3}x^2$

31. $h(x) = 3 + \frac{5}{2}x^2$

32. $g(x) = -x^2 + 3$

9	Solve quadratic equations by graphing	1-12	P 713

Solve each equation by graphing.

1. $x^2 + 7x + 14 = 0$

3. $x^2 + 16x + 64 = 0$

5. $x^2 + 14x = -49$

8. $-2x^2 - 8x = 13$

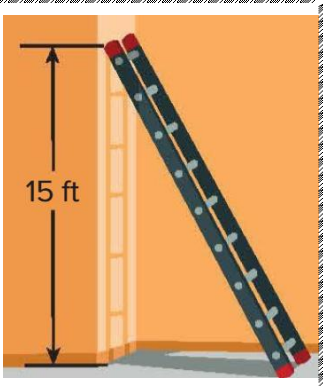
10. $2x^2 = -24x - 72$

12. $x^2 = -2x + 80$

10	Solve quadratic equations by factoring	27-30	P 722

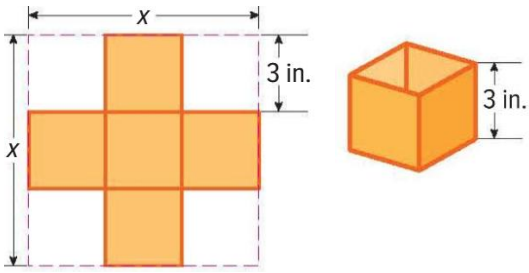
27. The product of the two consecutive positive integers is 11 more than their sum. What are the numbers

28. A ladder is resting against a wall. The top of the ladder touches the wall at a height of 15 feet, and the length of the ladder is one foot more than twice its distance from the wall. Find the distance from the wall to the bottom of the ladder. (Hint: Use the Pythagorean Theorem to solve the problem.)



29. The function $f(t) = -16t^2 + 576$ represents the height of a freely falling ballast bag that was accidentally dropped from a hot-air balloon 576 feet above the ground. After how many seconds does the ballast bag hit the ground?

30. Catalina can make an open-topped box out of a square piece of cardboard by cutting 3-inch squares from the corners and folding up the sides to meet. The volume of the resulting box is $V = 3x^2 - 36x + 108$, where x is the original length and width of the cardboard



11	Solve quadratic equations by completing the square	1–9	P729

Find the value of c that makes each trinomial a perfect square

1. $x^2 + 26x + c$

2. $x^2 - 24x + c$

7. $x^2 - 22x + c$

9. $x^2 + 24x + c$

12	Solve quadratic equation by using the quadratic formula	16–19	P735

16.Tanya runs a catering business. Based on her records, her weekly profit can be approximated by the function $f(x) = x^2 + 2x - 37$, where x is the number of meals she caters. If f(x) is negative, it means that the business has lost money. What is the least number of meals that Tanya needs to cater in order to make a profit?

17. At liftoff, the space shuttle Discovery has a constant acceleration of 16.4 feet per second squared and an initial velocity of 1341 feet per second due to the rotation of Earth. If the distance Discovery has traveled t seconds after liftoff is given by the equation d(t) = $1341t + 8.2t^2$, how long after liftoff has Discovery traveled 40,0

19. Ariadna cut a 60-inch chenille stem into W two unequal pieces, and then she used each piece to make a square. The sum of the areas of the squares was 117 square inches. Let x be the length of one piece. Write and solve an equation to represent the situation and find the lengths of the two original pieces.

13	Use the discriminant to determine the number and type of roots of a quadratic equation	20-34	P736

State the value of the discriminant for each equation. Then determine the number of real solutions of the equation.

20) $0.2x^2 - 1.5x + 2.9 = 0$

21) $2x^2 - 5x + 20 = 0$

23) $0.5x^2 - 2x = -2$

25) $2x^2 = \frac{5}{2}x + \frac{3}{2}$

32) $2x^2 + 6x + 12 = 0$

34) $3x^2 + 7x + 3 = 0$

14	solve systems of linear and quadratic equations by graphing	Example 1, Check, 1-4	P739, 740. 743

Example:

$y = x^2 + 4x - 1$

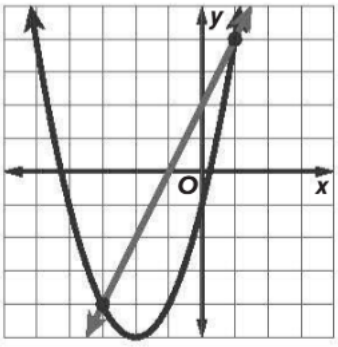
$y = 2x + 2$

Step 1 Graph $y = x^2 + 4x - 1$.

Step 2 Graph $y = 2x + 2$.

Step 3 Find the points of intersection.

The graphs appear to intersect at (−3, −4) and (1, 4)



Check

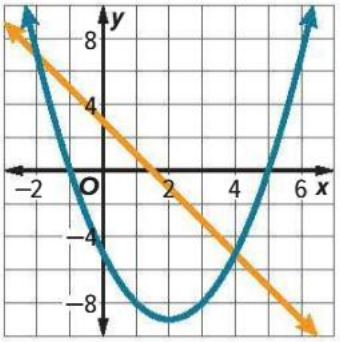
The graphs of f(x) = −2x + 3 and g(x) = $x^2 - 4x - 5$ are shown

Complete the ordered pair(s) to represent each situation

f(x) = 0 (? , ?)

g(x) = 0 (? ,?) (? ,?)

f(x) = g(x) (? , ?) (? ,?)



Solve the system of equations algebraically.

$\boldsymbol{y = x^2 - 8x + 19}$

$\boldsymbol{x - 0.5y = 3}$

15	Simplify expressions using the multiplication properties of exponents	1-18 & 28-43	P575-576

Simplify each expression.

1. $(q^2)(2q^4)$

2. $(-2u^2)(6u^6)$

3. $(9w^2x^8)(w^6x^4)$

4. $(y^6z^9)(6y^4z^2)$

5. $(b^8c^6d^5)(7b^6c^2d)$

6. $(14fg^2h^2)(3f^4g^2h^2)$

7. $(j^5k^7)^4$

8. $(n^3p)^4$

9. $[(2^2)^2]^2$

10. $[(3^2)^2]^4$

12. $[(-2xy^2)^3]^2$

13. $(y^2z)(yz^2)$

14. $(\ell^2k^2)(\ell^3k)$

15. $(-5m^3)(3m^8)$

16. $(-2c^4d)(-4cd)$

18. $(2b^3c^4)^2$

Simplify each expression

28. $(2a^3)^4(a^3)^3$

33. $(5x^2y)^2(2xy^3z)^3(4xyz)$

32. $(p^5r^2)^4(-7p^3r^4)(6pr^3)$

39. $\left(\frac{4}{5}a^2\right)^2$

41. $\left(\frac{4}{7}m\right)^2(49m)(17p)\left(\frac{1}{34}p^5\right)$

43. $(3ab^2c)^2(-2a^2b^4)^2(a^4c^2)^3(a^2b^4c^5)^3(2a^3b^2c^4)^3$

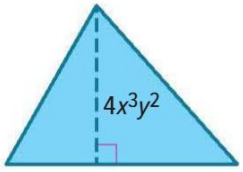
16	Divide monomials using the properties of exponents	35-39	P584

35) Decibels are used to measure sound. The softest sound that can be heard is rated at 0 decibels, or a relative loudness of 1. Ordinary conversation is rated at about 60 decibels, or a relative loudness of 10^6 . A stock car race is rated at about 130 decibels, or a relative loudness of 10^{13} . How many times greater is the relative loudness of a stock car race than the relative loudness of ordinary conversation?

36. The byte is the fundamental unit of computer processing. Almost all aspects of a computer's performance and specifications are measured in bytes or multiples of bytes. The byte is based on powers of 2, as shown in the table. How many times greater is a megabyte than a kilobyte?

Memory Term	Number of Bytes
byte	2^0 or 1
kilobyte	2^{10}
megabyte	2^{20}
gigabyte	2^{30}

37. AREA The area of the triangle shown is $6x^5\ y^3$. Find the base of the triangle.



38)The area of the rectangle in the figure is $32xy^3$ square units. Find the width of the rectangle.

39) Investment is expected to increase in value by 4% every year.

a. Write an expression that represents the value of the investment after t years if the initial value was n dollars.

b. By what percent does the value of the investment change between the end of year 2 and the end of year 8? Round your answer to the nearest tenth of a percent and show your work.

17	Simplify expressions containing negative and zero exponents	1-18	P 591

Simplify each expression. Assume that no denominator equals zero.

1. $\frac{r^6n^{-7}}{r^4n^2}$

2. $\frac{h^3}{h^{-6}}$

4. $\left(\frac{16p^5w^2}{2p^3w^3}\right)^0$

5. $\frac{f^{-5}g^4}{h^{-2}}$

9. $\frac{-10m^{-1}y^{0}r}{-14m^{-7}y^{-3}r^{-4}}$

18. $\frac{g^{0}h^{7}j^{-2}}{g^{-5}h^{0}j^{-2}}$

18	Evaluate and rewrite expressions involving rational exponents	33-40	P600

Write each expression in radical form, or write each radical in exponential form.

33. $17^{\frac{1}{3}}$

34. $q^{\frac{1}{4}}$

35. $7b^{\frac{1}{3}}$

36. $m^{\frac{2}{3}}$

37. $\sqrt[3]{29}$

40. $\sqrt[3]{xy^2}$

19	Multiply radical expressions	19-30	P616

Simplify

19. $2\sqrt{3} \cdot 3\sqrt{15}$

21. $6\sqrt{7} \cdot 2\sqrt{8}$

23. $11\sqrt{6} \cdot 3\sqrt{12}$

25. $\sqrt{2}(\sqrt{8} + \sqrt{6})$

27. $\sqrt{5}(\sqrt{2} + 4\sqrt{2})$

29. $4\sqrt{5}(3\sqrt{5} + 8\sqrt{2})$

20. $5\sqrt{3} \cdot 2\sqrt{21}$

22. $7\sqrt{10} \cdot 4\sqrt{10}$

24. $10\sqrt{5} \cdot 5\sqrt{11}$

26. $\sqrt{5}(\sqrt{10} - \sqrt{3})$

28. $\sqrt{6}(2\sqrt{10} + 3\sqrt{2})$

30. $5\sqrt{3}(6\sqrt{10} - 6\sqrt{3})$

20	Solve exponential equations	16-25	P621

Solve each equation.

16. $2^{5x} = 8^{2x-4}$

18. $2^{4x} = 32^{x+1}$

17. $81^{2x-3} = 9^{x+3}$

25. $3^{4x-2} = 729$

21	Multiply polynomials by using the Distributive Property	18-23, 42-49	P650

Find each product.

18. $(2y - 11)(y^2 - 3y + 2)$

19. $(4a + 7)(9a^2 + 2a - 7)$

20. $(m^2 - 5m + 4)(m^2 + 7m - 3)$

23. $(6z^2 - 5z - 2)(3z^3 - 2z - 4)$

42. $(w + 4)(w^2 + 3w - 6)$

47. $(3b + 4)(2b^2 - b + 4)$

Simplify

48. $(m + 2)[(m^2 + 3m - 6) + (m^2 - 2m + 4)]$

49. $[(t^2 + 3t - 8) - (t^2 - 2t + 6)](t - 4)$

22	Factor trinomials of the form $x^2 + bx + c$	Example 5, 17-20, 18-20	P669, 671, 686

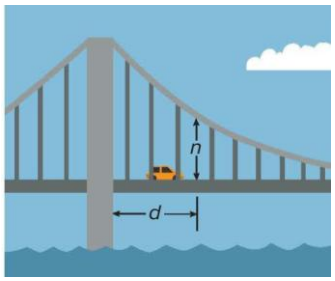
Example 5

FLAG DESIGN Switzerland's flag has a very unique shape; it is a square. However, the flag used by the country's naval vessels is rectangular, as shown. If the area of the square flag is $x^2 - 6x + 9$ square feet, and the length is increased by 4 feet, then what is the area of the naval flag in terms of x?

17. **COSMETICS CASE** The top of a cosmetics case is a rectangle in which the width is 2 centimeters greater than the length. The expression $x^2 + 26x - 168$ represents the area of the top of the case. Factor the expression.

18. **CARPENTRY** Miko wants to build a crate to hold record albums. The expression $2x^2 - 6x - 80$ represents the volume of the crate. Factor the expression.

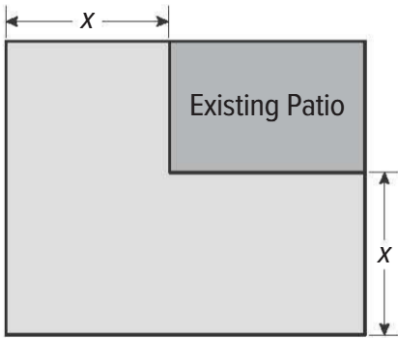
19. **BRIDGE ENGINEERING** A suspension bridge is a bridge in which the deck is supported by cables with towers spaced throughout the span of the bridge. The height of a cable n inches above the deck measured at distance d in yards from the first tower is given by $d^2 - 36d + 324$. Factor the expression.



20. **FINANCE** The break-even point for a business occurs when the revenues equal the cost. A local children's museum studied their costs and revenues from paid admission. They found that their break-even point is given by the expression $2h^2 - 2h - 24$, where h is the number of hours the museum is open per day. Factor the expression.

18. Factor $x^2 + 8x + 15$.

19) Mrs. Torres wants to add x feet onto the length and width of an existing rectangular patio. The new patio would have an area of $x^2 + 14x + 48$ square feet. What are the dimensions of the existing patio?



20) Factor $9x^2 + 9x + 2$.

23	Graph quadratic functions	Example 3-4; 5-16	691-692; 695-696

Graph $f(x) = x^2 + 2x - 6$.

Use 2 a table of values to graph $y = 2x^2 - 8x + 2$.

Graph each function.

$y = -3x^2 + 6x - 4$

$y = x^2 + 6x - 6$

Use a table of values to graph each function. State the domain and range

$y = x^2 + 4x + 6$

$y = 2x^2 - 8x - 5$

24	solve systems of linear and quadratic equations by using algebraic methods	5-10; 14-27	743-744

Solve each system of equations algebraically

5. $y = x^2 - 2x - 5$
$y = 3$

6. $y = x^2 + 4x - 1$
$y = 3x + 1$

7. $y = x^2 - 6x + 5$
$x + y = -1$

10. $y - 1 = 2x^2 - x$
$-2x + y = 3$

Solve each system of equations

14. $y = x^2$
$y = 2x$

15. $y = -2x^2 + 7x - 2$
$y = 3 - 4x$

27. $y = x^2 + 4x - 1$
$y = 3x$

24. $y = x^2 - 3x + 1$
$y = x + 1$

25	Evaluate and rewrite expressions involving rational exponents	27-32	599-600
	Solve exponential equations	13-15; 26-28	621-622

27. **VELOCITY** The velocity v in feet per second of a freely falling object that has fallen h feet can be represented by $v = 8h^{\frac{1}{2}}$. Find the velocity of an object if it has fallen a distance of 144 feet.

28. **GEOMETRY** The surface area S of a cube in square inches can be determined by $S = 6V^{\frac{2}{3}}$, where V is the volume of the cube in cubic inches. Find the surface area of a cube that has a volume of 4096 cubic inches.

29. **PLANETS** The average distance d in astronomical units that a planet is from the Sun can be modeled by $d = t^{\frac{2}{3}}$, where t is the number of Earth years that it takes for the planet to orbit the Sun. Find the average distance a planet is from the Sun if the planet has an orbit of 27 Earth years.

30. **BIOLOGY** The relationship between the mass m in kilograms of an organism and its metabolism P in Calories per day can be represented by $P = 73.3\sqrt[4]{m^3}$. Find the metabolism of an organism that has a mass of 16 kilograms.

32. TIRE MARKS When a driver applies the brakes, the tires lock but the car will continue to slide, leaving skid marks on the road. You can approximate the speed at which a car was traveling on a dry road based on the length of a skid mark left by the car using the formula Speed $= (30 \cdot \text{length} \cdot 0.75)^{\frac{1}{2}}$, where speed is measured in miles per hour and length is measured in feet. At approximately what speed was a car traveling if it left a 50-foot long skid mark? Round to the nearest tenth.

13. ELECTRICITY The relationship of the current, power, and resistance of an appliance can be modeled by $I\sqrt{R} = \sqrt{P}$, where I is the current in amperes, P is the power in watts, and R is the resistance in ohms. Find the resistance that an appliance is using if the current is 2.5 amps and the power is 100 watts.

14. VIDEO Felipe uploaded a funny video of his dog. The relationship between the elapsed time in days, d, since the video was first uploaded and the total number of views, v, that the video received is modeled by $v = 4^{1.25d}$. Find the number of days it took Felipe's video to get 1024 views.

15. CONSTRUCTION A large plot of land has been purchased by developers. They roll out a schedule of construction. The relationship between the area of the undeveloped land in hectares, A, and the elapsed time in months, t, since the construction began is modeled by the function $A = 6250 \cdot 10^{-0.1t}$. How many months of construction will there be before the area of the undeveloped land decreases to 62.5 hectares?

26. **USE A MODEL** Without advertising, a Web site had 96 total visits. Today, the owners of the site are starting a new promotion, which is expected to double the total number of visits to their Web site every 5 days.

a. Write an equation that relates the total number of visits, v, to the number of days the promotion has been running, d.

b. Use your equation from part **a** to find how many days the promotion should be run in order to increase the traffic to the Web site to 12,288 total visits.

27. **PHYSICS** The velocity v of an object dropped from a tall building is given by the formula $v = \sqrt{64d}$, where d is the distance the object has dropped. What distance was the object dropped from if it has a velocity of 49 feet per second? Round your answer to the nearest hundredth.

28. **FENCING** Representatives from the neighborhood have requested that the city install a fence around a newly-built playground. The equation $f = 4\sqrt{A}$ represents the amount of fence f needed based on the area A of the playground. If the playground has 324 feet of fencing, find the area of the playground.