أسئلة تدريبية على ضرب المقادير الجبرية



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: 2026-11-09 11:13:39	
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: كرم أسعد	

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	حل تجميع للهيكل مطابق لوصف الهيكل 2027 - منهج عربي
2	تجميع للهيكل مطابق لوصف الهيكل 2027 - منهج عربي
3	الهيكل الوزاري المعتمد 2027 ريفيل
4	هيكل اختبار نهاية الفصل
5	الهيكل الوزاري المعتمد بريدج 2027

تحميل تطبيق المناهج للهواتف الذكية	
تطبيق المناهج على Store App (آبل)	تطبيق المناهج على Play Google (أندرويد)

ملزمة هيكل 10 عام

(ريفيل)

2026-2027

Mathematics

الترم الاول



إعداد

أ / كرم أسعد

@MR_KARAM_ASAAD

لا تتردد في التواصل معنا والاستعداد للامتحان بكل ثقة

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Multiple Choice Questions

أسئلة اختيار من متعدد

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q1	Multiply binomials using the FOIL method	(1-6)	649

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Find each product.

1 Book #1

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

(A) $3c^2 + 4c - 15$

(B) $3c^2 - 4c - 15$

(C) $3c^2 + 14c - 15$

(D) $3c^2 + 4c + 15$

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2 Book #2

$(g + 10)(2g - 5)$

(A) $2g^2 + 25g - 50$

(B) $2g^2 + 15g - 50$

(C) $2g^2 - 15g - 50$

(D) $2g^2 + 15g + 50$

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3 Book #3

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

(A) $11a^2+43a+15$

(B) $30a^2+25a+15$

(C) $30a^2+43a+15$

(D) $30a^2+43a+8$

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4 Book #4

$(4x+1)(6x+3)$

(A) $24x^2+6x+3$

(B) $24x^2+18x+3$

(C) $24x^2+18x+4$

(D) $10x^2+18x+3$

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5 Book #5

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

(A) $15y^2-7y+4$

(B) $15y^2+17y+4$

(C) $15y^2-17y-4$

(D) $15y^2-17y+4$

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6 Book #6

$(6d-5)(4d-7)$

(A) $24d^2-62d-35$

(B) $24d^2-22d+35$

(C) $24d^2+62d+35$

(D) $24d^2-62d+35$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q2	Find squares of sums and differences	(1-6)	653-657

Find each product.

7 Book #1

$(a+10)(a+10)$

(A) $a^2+20a+100$

(B) $a^2+10a+100$

(C) a^2+100

(D) $a^2-20a+100$

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8 Book #2

$(b-6)(b-6)$

(A) b^2-36

(B) $b^2-12b+36$

(C) $b^2+12b+36$

(D) $b^2-12b-36$

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9 Book #3

$(h+7)^2$

(A) h^2+49

(B) $h^2-14h+49$

(C) $h^2+7h+49$

(D) $h^2+14h+49$

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10 Book #4

$(x+6)^2$

(A) x^2+36

(B) $x^2+12x+36$

(C) $x^2+12x+12$

(D) $x^2+6x+36$

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11 Book #5

$(8-m)^2$

(A) $m^2-16m+64$

(B) m^2+64

(C) $m^2+16m+64$

(D) $-m^2-16m+64$

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12 Book #6

$(9-2y)^2$

(A) $4y^2-18y+81$

(B) $2y^2-36y+81$

(C) $4y^2-36y+81$

(D) $4y^2+81$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q3	Find the product of a sum and a difference	(15-20)	658

Find each product.

13 Book #15

$(u-3)(u+3)$

(A) u^2-3

(B) u^2-9

(C) u^2+9

(D) u^2-6u+9

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14 Book #16

$(b-7)(b+7)$

(A) b^2+49

(B) $b^2-14b+49$

(C) b^2-7

(D) b^2-49

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15 Book #17

$(2-x)(2+x)$

(A) $4-x^2$

(B) x^2-4

(C) $2-x^2$

(D) $4+x^2$

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16 Book #18

$(4-x)(4+x)$

(A) $16+x^2$

(B) x^2-16

(C) $16-x^2$

(D) $8-x^2$

مساحة الحل • Working space

17 Book #19

$(2q-5r)(2q+5r)$

(A) $4q^2+25r^2$

(B) $4q^2-25r^2$

(C) $2q^2-5r^2$

(D) $4q^2-20qr+25r^2$

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18 $(3a^2 + 7b)(3a^2 - 7b)$

Book #20

(A) $9a^2 - 49b^2$

(B) $9a^4 + 49b^2$

(C) $3a^4 - 7b^2$

(D) $9a^4 - 49b^2$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q4	Factor polynomials using the Distributive Property	(1-6)	665

Factor each polynomial.

19 $16t - 40y$

Book #1

(A) $2(8t - 20y)$

(B) $8(2t - 5y)$

(C) $4(4t - 10y)$

(D) $8(2t + 5y)$

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20 $30v + 50x$

Book #2

(A) $5(6v + 10x)$

(B) $2(15v + 25x)$

(C) $10(3v + 5x)$

(D) $10(3v - 5x)$

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21 Book #3

$2k^2 + 4k$

(A) $2(k^2 + 2k)$

(B) $2k(k + 4)$

(C) $2k(k + 2)$

(D) $k(2k + 4)$

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22 Book #4

$5z^2 + 10z$

(A) $5z(z + 2)$

(B) $z(5z + 10)$

(C) $5(z^2 + 2z)$

(D) $5z(z + 10)$

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23 Book #5

$4a^2b^2 + 2a^2b - 10ab^2$

(A) $4ab(ab + a - 5b)$

(B) $2a(2ab^2 + ab - 5b^2)$

(C) $2ab(2ab + a - 5b)$

(D) $2ab(2ab + a + 5b)$

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24 Book #6

$5c^2v - 15c^2v^2 + 5c^2v^3$

(A) $5c^2(v - 3v^2 + v^3)$

(B) $5c^2v(1 - 3v - v^2)$

(C) $5cv(c - 3cv + cv^2)$

(D) $5c^2v(1 - 3v + v^2)$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q5	Factor trinomials of the form $x^2 + bx + c$	(73-78)	674

Answer each question about factoring trinomials.

25 Book #73

WHICH ONE DOESN'T BELONG? Three of the trinomials can be factored over the integers. Which one cannot (so it does not belong)?

(A) $x^2 + 11x + 24$

(B) $x^2 - 10x - 24$

(C) $x^2 + 12x + 24$

(D) $x^2 + 2x - 24$

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26 Book #74

FIND THE ERROR Jamaal and Charles factored $x^2 + 6x - 16$. Jamaal wrote $(x + 2)(x - 8)$ and Charles wrote $(x - 2)(x + 8)$. Who is correct?

(A) Neither; the trinomial is prime

(B) Charles; $x^2 + 6x - 16 = (x - 2)(x + 8)$

(C) Both are correct

(D) Jamaal; $x^2 + 6x - 16 = (x + 2)(x - 8)$

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27 Book #75

REASONING Find all integer values of k so that $x^2 + kx - 19$ can be factored over the integers.

(A) $k = \pm 19$ (B) $k = \pm 20$ (C) $k = \pm 18$ (D) $k = \pm 1$

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28 Book #76

REASONING Find all integer values of k so that $x^2 + kx + 14$ can be factored over the integers.

(A) $k = \pm 9,\ \pm 15$ (B) $k = 9,\ 15$ (C) $k = \pm 7,\ \pm 2$ (D) $k = \pm 5,\ \pm 14$

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29 Book #77

REASONING Find all positive integer values of k so that $x^2 - 8x + k$ can be factored over the integers.

(A) $k = 7,\ 12,\ 15,\ 16$

(B) $k = 8,\ 16$

(C) $k = 1,\ 2,\ 3,\ 4$

(D) $k = -7,\ -12,\ -15,\ -16$

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30 Book #78

REASONING Find all positive integer values of k so that $x^2 - 5x + k$ can be factored over the integers.

(A) $k = 5,\ 6$

(B) $k = 3,\ 4$

(C) $k = 1,\ 2,\ 3$

(D) $k = 4,\ 6$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q6	Factor trinomials of the form ax² + bx + c	(21-26)	672

Factor each polynomial, if possible.

31 Book #21

$5x^2 + 34x + 24$

(A) $(5x + 4)(x + 6)$

(B) $(5x + 2)(x + 12)$

(C) $(5x - 4)(x - 6)$

(D) $(5x + 6)(x + 4)$

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32 Book #22

$2x^2 + 19x + 24$

(A) $(2x + 8)(x + 3)$

(B) $(2x + 3)(x - 8)$

(C) $(2x + 3)(x + 8)$

(D) $(2x + 4)(x + 6)$

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33 Book #23

$4x^2 + 22x + 10$

(A) $2(2x + 1)(x + 5)$

(B) $2(2x + 5)(x + 1)$

(C) $(4x + 2)(x + 5)$

(D) $(2x + 1)(2x + 10)$

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34 Book #24

$4x^2 + 38x + 70$

(A) $2(2x + 7)(x + 5)$

(B) $2(2x + 5)(x + 7)$

(C) $(2x + 5)(2x + 14)$

(D) $2(x + 5)(x + 7)$

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35 Book #25

$2x^2 - 3x - 9$

(A) $(2x + 3)(x - 3)$

(B) $(2x - 3)(x + 3)$

(C) $(2x + 9)(x - 1)$

(D) $(2x + 3)(x + 3)$

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36 Book #26

$4x^2 - 13x + 10$

(A) $(4x + 5)(x + 2)$

(B) $(4x - 2)(x - 5)$

(C) $(4x - 5)(x - 2)$

(D) $(2x - 5)(2x - 2)$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q7	Factor differences of squares	(1-6)	679

Factor each polynomial completely, if possible.

37 Book #1

$q^2 - 121$

(A) $(q - 11)(q + 11)$

(B) $(q - 11)^2$

(C) $(q + 11)^2$

(D) $(q^2 + 11)(q - 11)$

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38 Book #2

$r^4 - k^4$

(A) $(r^2 - k^2)^2$

(B) $(r^2 + k^2)(r^2 - k^2)$

(C) $(r + k)^2(r - k)^2$

(D) $(r^2 + k^2)(r + k)(r - k)$

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39 Book #3

$w^4 - 625$

(A) $(w^2 + 25)(w^2 - 25)$

(B) $(w + 5)^2(w - 5)^2$

(C) $(w^2 - 25)^2$

(D) $(w^2 + 25)(w + 5)(w - 5)$

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40 Book #4

$r^2 - 9t^2$

(A) $(r - 3t)^2$

(B) $(r + 3t)^2$

(C) $(r - 3t)(r + 3t)$

(D) $(r - 9t)(r + 9t)$

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41 Book #5

$h^4 - 256$

(A) $(h^2 + 16)(h + 4)(h - 4)$

(B) $(h^2 + 16)(h^2 - 16)$

(C) $(h^2 - 16)^2$

(D) $(h + 4)^2(h - 4)^2$

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42 Book #6

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

(A) $(2x - 1)(x - 9)^2$

(B) $(x - 1)(2x - 9)(x + 9)$

(C) $(2x - 1)(x - 9)(x + 9)$

(D) $(2x + 1)(x - 9)(x + 9)$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q8	Divide monomials	(5-9)	581-583

Simplify each expression. Assume no denominator equals zero.

43 Book #6

$\frac{a^7b^8c^8}{a^5bc^7}$

(A) $a^2b^7c^{15}$

(B) $a^{12}b^9c^{15}$

(C) a^2b^8c

(D) a^2b^7c

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44 Book #5

$$\left(\frac{p^2t^7}{10}\right)^3$$

(A) $\frac{p^5t^{10}}{30}$

(B) $\frac{p^6t^{21}}{10}$

(C) $\frac{p^6t^{21}}{1000}$

(D) $\frac{p^6t^4}{1000}$

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45 Book #7

$$\left(\frac{3np^3}{7q^2}\right)^2$$

(A) $\frac{9n^2p^6}{49q^4}$

(B) $\frac{6n^2p^6}{14q^4}$

(C) $\frac{3n^2p^6}{7q^4}$

(D) $\frac{9n^2p^5}{49q^4}$

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46 Book #9

$$\left(\frac{3m^5r^3}{4p^8}\right)^4$$

(A) $\frac{81m^{20}r^{12}}{256p^{32}}$

(B) $\frac{81m^{20}r^{12}}{64p^{32}}$

(C) $\frac{12m^{20}r^{12}}{16p^{32}}$

(D) $\frac{81m^9r^7}{256p^{12}}$

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47 Book #8

$$\left(\frac{2r^3t^6}{5u^9}\right)^4$$

(A) $\frac{16r^{12}t^{24}}{125u^{36}}$

(B) $\frac{16r^7t^{10}}{625u^{13}}$

(C) $\frac{16r^{12}t^{24}}{625u^{36}}$

(D) $\frac{8r^{12}t^{24}}{20u^{36}}$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q9	Negative and zero exponents	(11-14)	587-591

Simplify each expression. Assume no denominator equals zero. Write with positive exponents.

48 Book #11

$$\frac{3m^{-3}r^4p^2}{12t^4}$$

(A) $\frac{m^3r^4p^2}{4t^4}$

(B) $\frac{3r^4p^2}{12m^3t^4}$

(C) $\frac{r^4p^2}{4m^3t^{-4}}$

(D) $\frac{r^4p^2}{4m^3t^4}$

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49 Book #12

$$\left(\frac{3t^6u^2v^5}{9tuv^{21}}\right)^0$$

(A) $\frac{1}{3}$

(B) $\frac{t^5uv^{-16}}{3}$

(C) 0

(D) 1

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50 Book #13

$$\frac{x^{-4}y^{9}}{z^{-2}}$$

(A) $\frac{x^{4}y^{9}}{z^{2}}$

(B) $\frac{y^{9}z^{2}}{x^{4}}$

(C) $\frac{x^{4}z^{2}}{y^{9}}$

(D) $\frac{y^{9}}{x^{4}z^{2}}$

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51 Book #14

$$\left(\frac{-5f^{9}g^{4}h^{2}}{fg^{2}h^{3}}\right)^{0}$$

(A) -1

(B) 0

(C) 1

(D) -5

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q10	Rational exponents	(9-16)	599

Simplify each expression.

52 Book #9

Simplify: $\left(\frac{1}{16}\right)^{1/4}$

(A) $\frac{1}{8}$

(B) $\frac{1}{4}$

(C) 4

(D) $\frac{1}{2}$

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53 Book #10

Simplify: $\sqrt[5]{3125}$

(A) 625 (B) 15 (C) 25 (D) 5

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54 Book #11

Simplify: $729^{1/3}$

(A) 9 (B) 81 (C) 27 (D) 243

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55 Book #12

Simplify: $\left(\frac{1}{32}\right)^{1/5}$

(A) $\frac{1}{2}$ (B) $\frac{1}{4}$ (C) $\frac{1}{16}$ (D) $\frac{1}{5}$

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56 Book #13

Simplify: $\sqrt[6]{4096}$

(A) 16 (B) 4 (C) 8 (D) 2

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57 Book #14

Simplify: $1024^{1/5}$

(A) 4 (B) 2 (C) 5 (D) 16

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58 Book #15

Simplify: $\left(\frac{16}{625}\right)^{1/4}$

(A) $\frac{4}{5}$ (B) $\frac{4}{25}$ (C) $\frac{2}{5}$ (D) $\frac{5}{8}$

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59 Book #16

Simplify: $\sqrt[6]{15625}$

(A) 25 (B) 5 (C) 125 (D) 3

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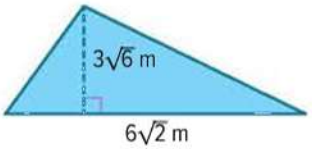
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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q11	Product Property of square roots	(67-70)	609

Solve each problem.

60 Book #67

AREA The base of a triangle measures $6\sqrt{2}$ meters and the height measures $3\sqrt{6}$ meters. What is the area?



(A) $18\sqrt{8}\ \text{m}^2$

(B) $18\sqrt{3}\ \text{m}^2$

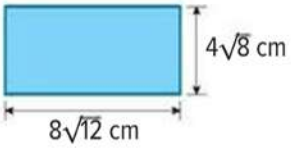
(C) $36\sqrt{3}\ \text{m}^2$

(D) $9\sqrt{12}\ \text{m}^2$

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61 Book #68

AREA The length of a rectangle measures $8\sqrt{12}$ cm and the width measures $4\sqrt{8}$ cm. What is the area?



(A) $128\sqrt{6}\ \text{cm}^2$

(B) $64\sqrt{6}\ \text{cm}^2$

(C) $128\sqrt{3}\ \text{cm}^2$

(D) $32\sqrt{20}\ \text{cm}^2$

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62 Book #69

MEAN The geometric mean of two numbers h and k is $\sqrt{h \cdot k}$. Find the geometric mean of 32 and 14 in simplest radical form.

(A) $2\sqrt{112}$ (B) $16\sqrt{7}$ (C) $8\sqrt{7}$ (D) $4\sqrt{28}$

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63 Book #70

THEATRE CREW The longest side of a cube that can be painted with surface area A is $s = \sqrt{\frac{A}{6}}$. Fernanda has paint to cover 5 square yards. What is the longest side length of the cube, to the nearest tenth of a yard?

(A) 0.8 yd (B) 1.2 yd (C) 2.2 yd (D) 0.9 yd

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q12	Quotient Property of radicals	(15-18), (55-56)	607-608

Simplify each expression.

64 Book #15

$\sqrt{\frac{192}{216}}$

(A) $\frac{\sqrt{2}}{3}$ (B) $\frac{2\sqrt{2}}{3}$ (C) $\frac{8}{9}$ (D) $\frac{2\sqrt{3}}{3}$

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65 Book #16

$\sqrt{\frac{88}{18}}$

(A) $\frac{2\sqrt{11}}{3}$

(B) $\frac{2\sqrt{11}}{9}$

(C) $\frac{4\sqrt{11}}{9}$

(D) $\frac{\sqrt{22}}{3}$

مساحة الحل • Working space

66 Book #17

$\frac{\sqrt{84}}{11}$

(A) $\frac{2\sqrt{42}}{11}$

(B) $\frac{4\sqrt{21}}{11}$

(C) $\frac{2\sqrt{21}}{11}$

(D) $\frac{\sqrt{21}}{11}$

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67 Book #18

$$\sqrt{\frac{75}{20}}$$

(A) $\frac{15}{4}$

(B) $\frac{\sqrt{15}}{2}$

(C) $\frac{5\sqrt{3}}{2}$

(D) $\frac{\sqrt{15}}{4}$

مساحة الحل • Working space

68 Book #55

$$\sqrt[3]{\frac{192x^7}{1029x^{10}}}$$

(A) $\frac{64}{343x}$

(B) $\frac{4x}{7}$

(C) $\frac{4}{7x}$

(D) $\frac{4}{7x^3}$

مساحة الحل • Working space

69 Book #56

$$\sqrt[3]{\frac{640a^3b^8}{5ab^4}}$$

(A) $4b\sqrt[3]{2a^2b}$

(B) $4b\sqrt[3]{2ab}$

(C) $4ab\sqrt[3]{2b}$

(D) $8b\sqrt[3]{a^2b}$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q13	Add and subtract radical expressions	(1-8)	615

Simplify.

70 Book #1

$7\sqrt{7} - 2\sqrt{7}$

(A) $9\sqrt{7}$ (B) $5\sqrt{14}$ (C) $5\sqrt{7}$ (D) 5

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71 Book #2

$3\sqrt{13} + 7\sqrt{13}$

(A) $10\sqrt{26}$ (B) $10\sqrt{13}$ (C) $21\sqrt{13}$ (D) $4\sqrt{13}$

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72 Book #3

$7\sqrt{5} + 4\sqrt{5}$

(A) $3\sqrt{5}$ (B) $28\sqrt{5}$ (C) $11\sqrt{10}$ (D) $11\sqrt{5}$

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73 Book #4

$2\sqrt{6} + 9\sqrt{6}$

(A) $18\sqrt{6}$ (B) $7\sqrt{6}$ (C) $11\sqrt{12}$ (D) $11\sqrt{6}$

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74 Book #5

$12\sqrt{r} - 9\sqrt{r}$

(A) $21\sqrt{r}$ (B) $3\sqrt{r}$ (C) 3 (D) $3r$

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75 Book #6

$9\sqrt{6a} - 11\sqrt{6a} + 4\sqrt{6a}$

(A) $2\sqrt{18a}$ (B) $-2\sqrt{6a}$ (C) $2\sqrt{6a}$ (D) $24\sqrt{6a}$

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76 Book #7

$3\sqrt{5} - 2\sqrt{20}$

(A) $-\sqrt{5}$ (B) $\sqrt{5}$ (C) $-\sqrt{15}$ (D) $5\sqrt{5}$

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77 Book #8

$3\sqrt{50} - 3\sqrt{32}$

(A) $3\sqrt{18}$ (B) $3\sqrt{2}$ (C) $\sqrt{2}$ (D) $27\sqrt{2}$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q14	Solve quadratic equations by factoring	(29-30)	722

Solve each problem.

78 Book #29

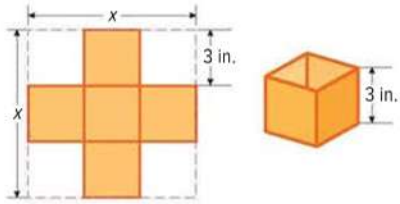
FREE FALL The function $f(t) = -16t^2 + 576$ represents the height of a ballast bag dropped from a hot-air balloon 576 feet above the ground. After how many seconds t does the bag hit the ground?

(A) $t = 6$ s (B) $t = 36$ s (C) $t = 24$ s (D) $t = 9$ s

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79 Book #30

VOLUME The volume of an open-topped box made from a square cardboard of side x (cutting 3-inch squares from the corners) is $V = 3x^2 - 36x + 108$. What is the factored form of V, and what is the volume when $x = 9$ in.?



(A) $V = 3(x - 6)^2$; 27 in^3

(B) $V = 3(x + 6)^2$; 675 in^3

(C) $V = 3(x - 18)^2$; 27 in^3

(D) $V = 3(x - 6)(x + 6)$; 81 in^3

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q15	Solve quadratic equations: Square Root Property and completing the square	(37-39)	725-730

Answer each question.

80 Book #37

WHICH ONE DOESN'T BELONG? Which expression is **not** a perfect square trinomial?

(A) $n^2 - n + \frac{1}{4}$

(B) $n^2 + n + \frac{1}{4}$

(C) $n^2 + \frac{1}{3}n + \frac{1}{9}$

(D) $n^2 - \frac{2}{3}n + \frac{1}{9}$

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81 Book #38

CREATE Which quadratic equation has **4** as its only solution?

(A) $(x - 4)(x + 4) = 0$

(B) $(x + 4)^2 = 0$

(C) $x^2 - 16 = 0$

(D) $(x - 4)^2 = 0$

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82 Book #39

WRITE Which statement about solving $x^2 - 5x - 7 = 0$ is correct?

(A) Completing the square gives $x = \dfrac{5 \pm \sqrt{53}}{4}$

(B) It has no real solutions

(C) It factors as $(x - 7)(x + 1) = 0$, so $x = 7, -1$

(D) It cannot be factored over the integers; completing the square (or the formula) gives $x = \dfrac{5 \pm \sqrt{53}}{2}$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q16	Write y = a(x – h)² + k and transform graphs	(1-10)	699, 707

Describe the translation of each function from the graph of the parent function $f(x) = x^2$.

83 Book #1

Describe the translation of $g(x) = -10 + x^2$ from the graph of $f(x) = x^2$.

(A) left 10 units

(B) down 10 units

(C) up 10 units

(D) right 10 units

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84 Book #2

Describe the translation of $g(x) = x^2 + 2$ from the graph of $f(x) = x^2$.

(A) up 2 units

(B) down 2 units

(C) right 2 units

(D) left 2 units

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85 Book #3

Describe the translation of $g(x) = (x - 1)^2$ from the graph of $f(x) = x^2$.

(A) up 1 unit

(B) right 1 unit

(C) left 1 unit

(D) down 1 unit

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86 Book #4

Describe the translation of $g(x) = x^2 - 8$ from the graph of $f(x) = x^2$.

(A) right 8 units

(B) down 8 units

(C) left 8 units

(D) up 8 units

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87 Book #5

Describe the translation of $g(x) = (x + 3)^2$ from the graph of $f(x) = x^2$.

(A) up 3 units

(B) down 3 units

(C) right 3 units

(D) left 3 units

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88 Book #6

Describe the translation of $g(x) = x^2 + 7$ from the graph of $f(x) = x^2$.

(A) up 7 units

(B) left 7 units

(C) down 7 units

(D) right 7 units

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89 Book #7

Describe the translation of $g(x) = (x + 2.5)^2$ from the graph of $f(x) = x^2$.

(A) right 2.5 units

(B) down 2.5 units

(C) up 2.5 units

(D) left 2.5 units

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90 Book #8

Describe the translation of $g(x) = (x + 5)^2 - 2$ from the graph of $f(x) = x^2$.

(A) right 5 units and up 2 units

(B) left 5 units and up 2 units

(C) left 5 units and down 2 units

(D) right 5 units and down 2 units

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91 Book #9

Describe the translation of $g(x) = 6 + x^2$ from the graph of $f(x) = x^2$.

(A) right 6 units

(B) down 6 units

(C) up 6 units

(D) left 6 units

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92 Book #10

Describe the translation of $g(x) = -4 + (x - 3)^2$ from the graph of $f(x) = x^2$.

(A) right 3 units and up 4 units

(B) left 3 units and up 4 units

(C) left 3 units and down 4 units

(D) right 3 units and down 4 units

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q17	Solve quadratic equations by factoring	(1-10)	721

Solve each equation by factoring.

93 Book #1

Solve: $x^2 = 36$

(A) $x = \pm 18$

(B) $x = 0,\ 36$

(C) $x = 6$

(D) $x = \pm 6$

مساحة الحل • Working space

94 Book #2

Solve: $x^2 = 81$

(A) $x = 9$

(B) $x = \pm 40.5$

(C) $x = \pm 9$

(D) $x = 0,\ 81$

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95 Book #3

Solve: $(k+1)^2 = 9$

(A) $k = 2,\ 4$ (B) $k = 2,\ -4$ (C) $k = 8,\ -10$ (D) $k = 3,\ -3$

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96 Book #4

Solve: $81 - 4b^2 = 0$

(A) $b = \pm\frac{2}{9}$ (B) $b = \pm\frac{81}{4}$ (C) $b = \pm 9$ (D) $b = \pm\frac{9}{2}$

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97 Book #5

Solve: $3b(9b - 27) = 0$

(A) $b = 3,\ 9$ (B) $b = 0,\ -3$ (C) $b = 0,\ 3$ (D) $b = 0,\ 27$

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98 Book #6

Solve: $(7x + 3)(2x - 6) = 0$

(A) $x = \frac{3}{7},\ -3$ (B) $x = -\frac{3}{7},\ 3$ (C) $x = -\frac{7}{3},\ 3$ (D) $x = -\frac{3}{7},\ -3$

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99 Book #7

Solve: $b^2 = -3b$

(A) $b = 0,\ 3$ (B) $b = 0,\ -3$ (C) $b = -3$ (D) $b = 3,\ -3$

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100 Book #8

Solve: $a^2 = 4a$

(A) $a = 0,\ 4$ (B) $a = \pm 4$ (C) $a = 0,\ -4$ (D) $a = 4$

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101 Book #9

Solve: $x^2 - 6x = 27$

(A) $x = 9,\ 3$ (B) $x = 9,\ -3$ (C) $x = -9,\ 3$ (D) $x = 6,\ 27$

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102 Book #10

Solve: $a^2 + 11a = -18$

(A) $a = -18,\ 1$ (B) $a = 2,\ 9$ (C) $a = -2,\ -9$ (D) $a = -2,\ 9$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q18	Transform graphs of quadratic functions	(21-30)	703-708

Describe the transformation of each function from the graph of the parent function $f(x) = x^2$.

103 Book #21

Describe the graph of $g(x) = -6x^2$ compared with $f(x) = x^2$.

(A) reflected across the x-axis and vertically compressed (wider), factor 6

(B) reflected across the x-axis and vertically stretched (narrower), factor 6

(C) translated down 6 units

(D) vertically stretched by factor 6 only (opens up)

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104 Book #22

Describe the graph of $g(x) = (-9x)^2$ compared with $f(x) = x^2$.

(A) reflected across the x-axis and narrower

(B) translated left 9 units

(C) wider (compressed by factor 81)

(D) narrower (vertical stretch by factor 81); it still opens up

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105 Book #23

Describe the graph of $g(x) = -\frac{1}{3}x^2$ compared with $f(x) = x^2$.

(A) translated down 1/3 unit

(B) wider only (opens up)

(C) reflected across the x-axis and wider (compressed by factor 1/3)

(D) reflected across the x-axis and narrower

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106 Book #24

Describe the graph of $g(x) = \left(-\frac{2}{3}x\right)^2$ compared with $f(x) = x^2$.

(A) reflected across the x-axis and wider

(B) wider (vertical compression by factor 4/9); it still opens up

(C) translated right 2/3 unit

(D) narrower (stretched by factor 4/9)

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107 Book #25

Describe the graph of $g(x) = -2x^2$ compared with $f(x) = x^2$.

(A) narrower only (opens up)

(B) translated down 2 units

(C) reflected across the x-axis and wider

(D) reflected across the x-axis and narrower (stretch by factor 2)

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108 Book #26

Describe the graph of $g(x) = \left(-\frac{6}{5}x\right)^2$ compared with $f(x) = x^2$.

(A) narrower (vertical stretch by factor 36/25); it still opens up

(B) reflected across the x-axis and narrower

(C) translated left 6/5 units

(D) wider (compressed by factor 36/25)

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109 Book #27

Describe the graph of $g(x) = -7 - x^2$ compared with $f(x) = x^2$.

(A) reflected across the x-axis and translated down 7 units

(B) reflected across the x-axis and translated up 7 units

(C) reflected across the y-axis and translated down 7 units

(D) translated down 7 units only (opens up)

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110 Book #28

Describe the graph of $g(x) = 2(x - 3)^2 + 8$ compared with $f(x) = x^2$.

(A) narrower, translated left 3 and up 8

(B) narrower (stretch by factor 2), translated right 3 and up 8

(C) narrower, translated right 3 and down 8

(D) wider (compressed by factor 2), translated right 3 and up 8

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111 Book #29

Describe the graph of $g(x) = 6 + \frac{2}{3}x^2$ compared with $f(x) = x^2$.

(A) translated up 6 units and wider (compressed by factor 2/3)

(B) translated left 6 units and wider

(C) translated up 6 units and narrower

(D) translated down 6 units and wider

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112 Book #30

Describe the graph of $g(x) = -5 - \frac{4}{3}x^2$ compared with $f(x) = x^2$.

(A) reflected, wider and translated down 5 units

(B) reflected, narrower and translated up 5 units

(C) reflected across the x-axis, narrower (stretch by factor 4/3) and translated down 5 units

(D) not reflected, narrower and translated down 5 units

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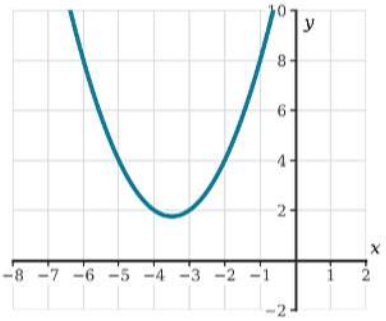
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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q19	Solve quadratic equations by graphing	(1-6)	711-713

Solve each equation by graphing the related function. Round to the nearest tenth if necessary.

113 Book #1

Solve $x^2 + 7x + 14 = 0$ using the graph of its related function.



(A) No real solution

(B) $x = -2,\ -7$

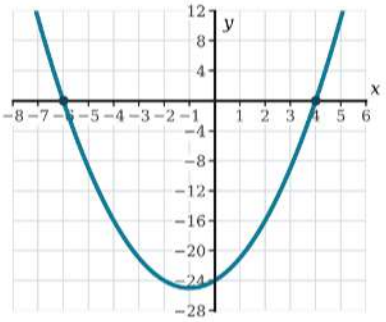
(C) $x = -3.5$

(D) $x = -7,\ 0$

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114 Book #2

Solve $x^2 + 2x - 24 = 0$ using the graph of its related function.



(A) $x = -8,\ 3$

(B) $x = -1,\ -25$

(C) $x = 6,\ -4$

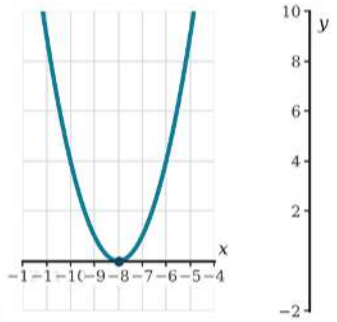
(D) $x = -6,\ 4$

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115 Book #3

Solve $x^2 + 16x + 64 = 0$ using the graph of its related function.



(A) No real solution

(B) $x = -8,\ 8$

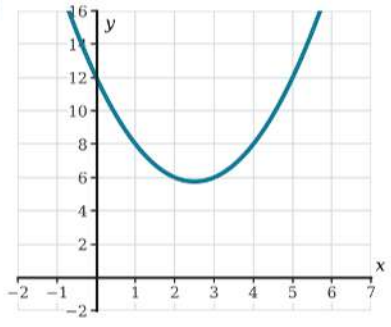
(C) $x = 8$

(D) $x = -8$

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116 Book #4

Solve $x^2 - 5x + 12 = 0$ using the graph of its related function.



(A) No real solution

(B) $x = 3,\ 4$

(C) $x = 2.5$

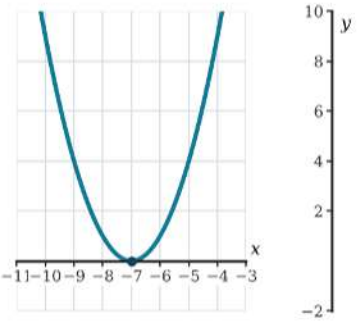
(D) $x = -3,\ -4$

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117 Book #5

Solve $x^2 + 14x = -49$ using the graph of its related function.



(A) $x = 7$

(B) No real solution

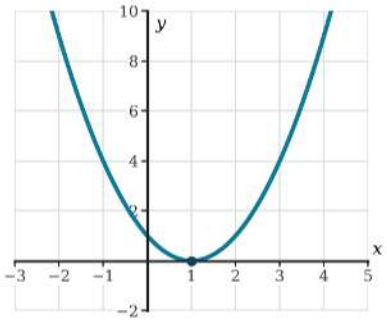
(C) $x = -7$

(D) $x = -7,\ 7$

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118 Book #6

Solve $x^2 = 2x - 1$ using the graph of its related function.



(A) No real solution

(B) $x = 1$

(C) $x = -1$

(D) $x = 0,\ 2$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q20	Solve quadratic equations by completing the square	(1-6)	729

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

119 Book #1

Find c so that $x^2 + 26x + c$ is a perfect square trinomial.

(A) $c = 26$ (B) $c = 676$ (C) $c = 13$ (D) $c = 169$

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120 Book #2

Find c so that $x^2 - 24x + c$ is a perfect square trinomial.

(A) $c = 24$ (B) $c = 576$ (C) $c = 12$ (D) $c = 144$

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121 Book #3

Find c so that $x^2 - 19x + c$ is a perfect square trinomial.

(A) $c = 361$ (B) $c = 19$ (C) $c = 90.25$ (D) $c = 9.5$

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122 Book #4

Find c so that $x^2 + 17x + c$ is a perfect square trinomial.

(A) $c = 289$ (B) $c = 17$ (C) $c = 8.5$ (D) $c = 72.25$

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123 Book #5

Find c so that $x^2 + 5x + c$ is a perfect square trinomial.

(A) $c = 25$ (B) $c = 6.25$ (C) $c = 5$ (D) $c = 2.5$

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124 Book #6

Find c so that $x^2 - 13x + c$ is a perfect square trinomial.

(A) $c = 169$ (B) $c = 42.25$ (C) $c = 13$ (D) $c = 6.5$

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q21	Add and subtract polynomials	(27-34)	636

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Find each sum or difference. Show every step.

1

Book #27–28

27. $(3c^3 - c + 11) - (c^2 + 2c + 8)$

28. $(z^2 + z) + (z^2 - 11)$

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2

Book #29–30

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

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

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3 Book #31–32

31. $(x^2y - 3x^2 + y) + (3y - 2x^2y)$

32. $\left(-\frac{22}{4}xy + 3x^2 - 5y\right) + \left(4x^2 - 2y + \frac{7}{2}xy\right)$

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4 Book #33–34

33. $(5n - 2p^2 + 2np) - (4p^2 + 4n)$

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

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q22	Multiply polynomials using the Distributive Property	(18-23)	650

Find each product. Show every step.

5 Book #18

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

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6

Book #19

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

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7

Book #20

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

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8

Book #21

21. $(x^2+5x-1)(5x^2-6x+1)$

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9 Book #22

22. $(3b^3 - 4b - 7)(2b^2 - b - 9)$

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10 Book #23

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

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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q23	Multiply monomials and simplify using the properties of exponents	(25-30), (56-58)	576-578

Show every step.

11 Book #25

FIELDS A field is in the shape of a square. The length of the field is $5x^3y^5$. What is the area of the field in terms of *x* and *y*?

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12 Book #26

PICTURE FRAME The interior of the square picture frame has side $5c^3d^2$. What is the area of the interior in terms of c and d?



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13 Book #27

SHIPPING A shipping box is in the shape of a cube with edge $4m^8n^4$. What is the volume in terms of m and n?



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14 Book #28–30

Simplify each expression.

28. $(2a^3)^4(a^3)^3$ **29.** $(c^3)^2(-3c^5)^2$ **30.** $(2gh^4)^3[(-2g^4h)^3]^2$

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15 Book #56

STATE YOUR ASSUMPTION Consider the expressions $(m^p)(m^q)$ and $(m^p)^q$.

a. What must be true about p and q for $(m^p)(m^q) = (m^p)^q$? Give an example.

b. Assuming m, p and q are all positive integers, can $(m^p)(m^q) > (m^p)^q$ ever be true? Explain.

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16 Book #57

PERSEVERE For any nonzero real numbers a and b and any integers m and t, simplify $\left(\frac{-a^m}{b^t}\right)^{2t}$. Explain.

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Book #58

ANALYZE Consider the equations in the table.

a. For each equation, write the related expression and record the power of x.

Equation	Related Expression	Power of x	Linear or Nonlinear
$y = x$			
$y = x^2$			
$y = x^3$			

b. Graph each equation using a graphing calculator.

c. Classify each graph as *linear* or *nonlinear*.

d. Explain how to determine whether an equation, or its related expression, is linear or nonlinear without graphing.

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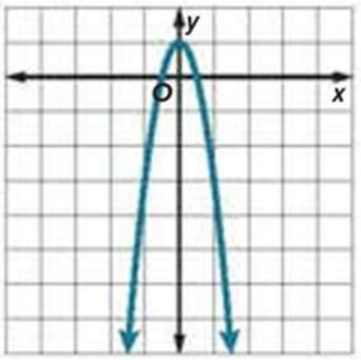
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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q24	Find and interpret the maximum and minimum values of a quadratic function	(1-4)	695

Identify the axis of symmetry, the vertex, and the *y*-intercept of each graph. Then describe the end behavior. (Each grid square = 1 unit.)

18 Book #1

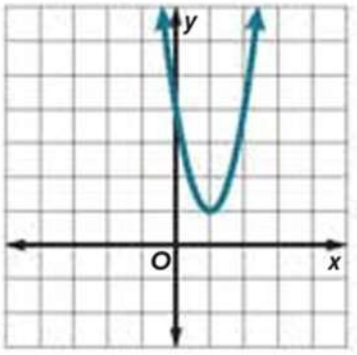
Identify the axis of symmetry, the vertex and the *y*-intercept, then describe the end behavior.



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19 Book #2

Identify the axis of symmetry, the vertex and the *y*-intercept, then describe the end behavior.

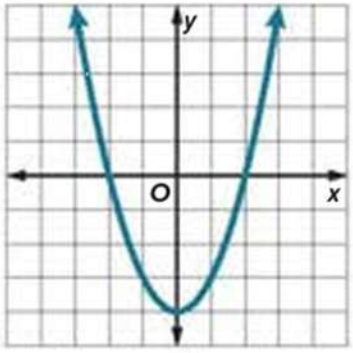


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20 Book #3

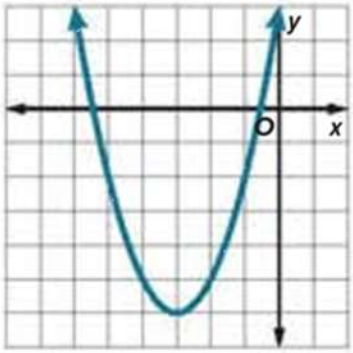
Identify the axis of symmetry, the vertex and the *y*-intercept, then describe the end behavior.



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21 Book #4

Identify the axis of symmetry, the vertex and the *y*-intercept, then describe the end behavior.



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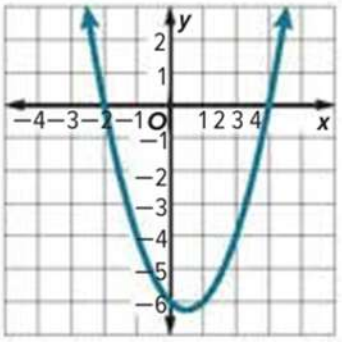
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Q	LEARNING OUTCOME	REVEAL (ENGLISH)	PAGE
Q25	Write quadratic equations using the Standard Form	(31-34)	722

Write a quadratic function for the given graph. (Read the zeros and the vertex from the grid.)

22 Book #31

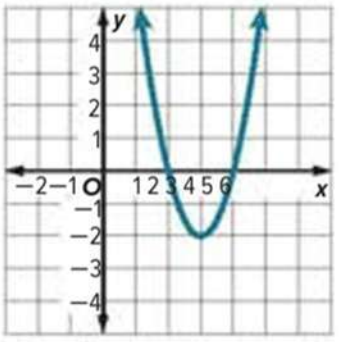
Write a quadratic function for the graph.



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23 Book #32

Write a quadratic function for the graph.

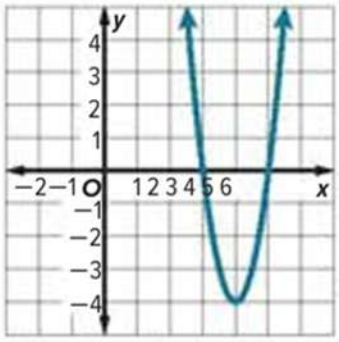


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24 Book #33

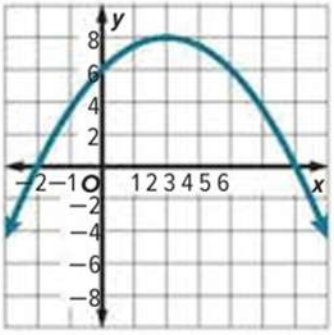
Write a quadratic function for the graph.



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25 Book #34

Write a quadratic function for the graph.



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