

Upper Elementary

Math Task Cards
Answer Key

Upper Elementary Advanced Math

Published
by

ETCmontessori®

The unlicensed photocopying, reproduction, display, or projection of the material, contained in this publication, is expressly prohibited by law.

Copying without express permission from ETC Montessori may result in legal action against you and the organization that employs you.

© 2014
by ETCmontessori®

877-409-2929

www.ETCmontessori.com

Cover Design and Typesetting: Marcus Ennis

Printed in the U.S. by ETC® Press Inc.

Published by ETC Montessori®







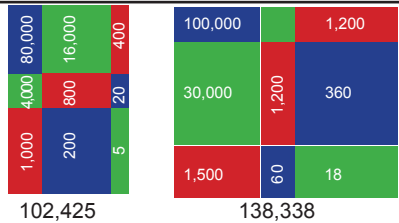
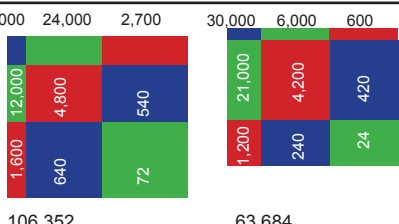
Copyeditor in Chief: Carrie Hotchkiss

Supervising Director: Erika Ohlhaber

Images courtesy of Getty Images®

All rights reserved. No part of this publication may be reproduced, displayed, or repurposed—in whole or in part—in any form without prior written consent from ETCmontessori®

Advanced Math Answer Key


	Left Side of the Card	Right Side of the Card	Application
Multiplication of a Binomial A1	$23 \times 46 = 1,058$	$(40 + 6) \times (20 + 8)$ $(50 + 9) \times (30 + 8)$ $(90 + 3) \times (70 + 2)$ $(50 + 2) \times (60 + 4)$ $(30 + 3) \times (10 + 7)$	3) $20 + 20 + 20 = 60$
A2	1) 2,294 2) 1,596 3) 1,736 4) 1,817	$21 + 35 + 6 + 10 = 72$ $8 + 2 + 32 + 8 = 50$ $24 + 12 + 30 + 15 = 81$	2) $120 = 5 \times 24$
A3	1) 17,366 2) 17,353 2) 22,008 4) 23,408	$15 + 9 + 30 + 18 = 72$ $32 + 56 + 4 + 7 = 99$ $45 + 20 + 63 + 28 = 156$ $48 + 30 + 56 + 35 = 169$	1) $74 \div 2 = 37$
A4	1) 89,831 2) 210,338 3) 25,122 4) 356,400	$200 + 40 + 100 + 20 = 360$ $300 + 10 + 60 + 2 = 372$ $100 + 40 + 40 + 16 = 196$	4) $6 \times 7 + 10 = 52$
A5	Answers will vary	 $100 + 40 + 40 + 16 = 196$	1) $(250 - 150) \div 2 = 50$
A6	The partial product is in the lattice. Draw a vertical line from the decimal point through the lattice. Multiply the decimal place values to find the decimal point placement	 324 225 121	3) $(148 - 52) \div 3 = 32$
Drawing a Binomial and a Trinomial A7	A slide rule is a mechanical device used for quick calculations. It is used for \times , \div , functions, and trigonometry. It has been replaced by the calculator.	Answer is given on the card.	$8(65 \div 5) = 104$
A8	1) 5,238 2) 4,239 3) 4,151 4) 3,245	 $2,000 + 120 + 100 + 6 = 2,226$  $600 + 80 + 240 + 32 = 952$	$\$2.69 (96 \div 8) = \32.28
A9	1) 8,292 2) 10,872 3) 43,134 4) 332,442	 $1,800 + 120 + 60 + 4 = 1,984$  $800 + 20 + 480 + 12 = 1,312$	$\frac{2}{3} \times 12 = 8$
A10	1) 90 2) 206	 102,425 138,338	$6(45 \times 8) = 2,160$
A11	Answers will vary.	 106,352 63,684	$30(30 - 4) \div 60 = 13$

	Left Side of the Card	Right Side of the Card	Application
A12	Answers will vary.		$(\$8.50 \times 2) + (\$6.75 \times 2) = \$30.50$
Square Guides B1	x is a variable , 7 and 9 are numbers + is the operation x = 7	Square guide may remind students of checkerboard, lattice, or Napier's Bones $13^2 = 169$	1) $T = C + 5$ 2) $T = K + 7$ 3) $E = K - 3$
B2	$\begin{array}{r} x + 8 = 13 \\ - 8 \quad - 8 \\ \hline x = 5 \end{array}$	1) $16^2 = 256$ 2) $34^2 = 1,156$ 3) $49^2 = 2,401$ 4) $25^2 = 625$	1) $L = 3S$ 2) $C = G + .50$ 3) $S = 2(B-3)$
B3	1) $10 = x$ 2) $x = 20$ 3) $25 = x$ 4) $x = 7$ **Mathematical convention usually places the variable to the left of the = sign**	1) $296^2 = 87,616$ 2) $385^2 = 148,225$ 3) $741^2 = 549,081$	$2h + (2h + h) + 2(2h + h) = B$
B4	1) $x = 10$ 2) $x = 4$ 3) $x = 25$ 4) $x = 7$	1) $11^2 = 121$ 2) $111^2 = 12,321$ 3) $1,111^2 = 1,234,321$ 4) $11,111^2 = 123,454,321$ 5) $111,111^2 = 12,345,654,321$ 6) $1,111,111^2 = 123,456,7654,321$	$s = r + 2r + (3r + 6)$
B5	1) $x = 6$ 2) $x = 4$ 3) $x = 10$ 4) $x = 6$	Binomial Formula $a^2 + 2ab + b^2$	$30 = 1/3 g + 1/2 s + d$
B6	1) $x = 3$ 2) $x = 2$ 3) $x = 7$ 4) $x = 5$	$a^2 + 2ab + b^2$ 1) $43^2 = 1,849$ 2) $62^2 = 3,844$ 2) $17^2 = 289$ 4) $28^2 = 784$	$(l + 8) + s = 45$
B7	1) $x = 6$ 2) $x = 4$ 3) $x = 7$ 4) $x = 5$	Trinomial Formula $a^2 + 2ab + 2ac + b^2 + 2bc + c^2$	$3m + (3m - .5m) + 2(3m) = s$
B8	1) $x = 7$ 2) $x = 12$ 3) $x = 7$ 4) $x = 3$	$a^2 + 2ab + 2ac + b^2 + 2bc + c^2$ 1) $136^2 = 190,096$ 2) $253^2 = 64,009$ 3) $527^2 = 277,729$ 4) $189^2 = 35,721$	$3i + (3i + 2i) + i = t$
Square Roots C1	Definitions are on the card	Information is on the card	4, 6 6, 8 8, 10 10, 12 12, 14
C2	Definitions are on the card	$\sqrt{25} = 5$ $\sqrt{49} = 7$ $\sqrt{81} = 9$	9, 3 10, 4 11, 5 12, 6 13, 7
C3	0 = whole, integer, rational, real 3.4 = rational, real $\sqrt{28}$ = rational, real 65 = natural, whole, integer, rational, real -5 = integer, rational, real	$\sqrt{53} = 7$ r. 4 $\sqrt{46} = 6$ r.10 $\sqrt{31} = 5$ r. 6	4,8 8,16 16,32 32,64 64,128
C4	53 = natural, whole, integer, real 3/8 = rational, real 2.444 = rational, real -15 = integer, rational, real 18 = natural, whole, integer, rational, real	For every 2 digits in the radicand, there are 1-2 digits in the root.	5,10 13,18 21,26 29,34 37,42
C5	Answers will vary	1) 2 digits 2) 3 digits 3) 4 digits 4) 4 digits 5) 3 digits 6) 3 digits 7) 3 digits 8) 4 digits 9) 5 digits 10) 5 digits	50, 46, 40, 36 30, 26 20, 16 10, 6
C6	Answers will vary	Answers will vary.	3, 9 6, 18 9, 27 12, 36 15, 45

Left Side of the Card

Right Side of the Card

Application

C7	R Q whole N I 	$\sqrt{625} = 25$	$x \div 3$
C8	1) 6 2) 4 3) 0 4) x 5) x 6) x	$\sqrt{529}^{23}$ $\sqrt{1156}^{34}$	x^2
C9	Information is on the card	$\sqrt{1764}^{42}$	$2x + 1$
C10	1) 4 2) 10 3) 16 4) 5 5) 16	$\sqrt{576}^{24}$ $\sqrt{2601}^{51}$	$3x - 1$
C11	1) 8 2) 6 3) 18 4) 1 5) 4	$\sqrt{1089}^{33}$ $\sqrt{3844}^{62}$	x^3
C12	1) 2 2) 135 3) 67 4) 30 5) 66	$\sqrt{1228}^{35r.3}$ $\sqrt{260}^{16r.4}$	Information is on the card
C13	1) 66 2) 2 3) 11 4) 102 5) 92	$\sqrt{53361}^{231r.2}$ $\sqrt{1228}^{343}$	$x + (x + 7) + (x + 7 + 6) = 80$ $3x + 20 = 80$
C14	1) 54 2) 34 3) 5 4) 459 5) 144	$\sqrt{181476}^{426}$ $\sqrt{99225}^{315r.3}$	$24 = x + x + (x + 3)$ $24 = 3x + 3$
C15	1) 134 2) 10 3) 4 4) 50 5) 288	$\sqrt{96721}^{311r.4}$ $\sqrt{190969}^{437}$	$x + 2x + 4x = 35$ $7x = 35$
Square Root Algorithm Binomial D1	Answers will vary but could include, negative temperatures, below sea level, or debts.	Answer is on the card.	$3x + 10 = 22$ $x = 4$
D2	1) > 2) > 3) < 4) < 5) < 6) <	$\sqrt{4096}^{64}$ $\sqrt{3249}^{57}$	$9x + 1 = 19$ $x = 2$
D3	Answers will vary and could include decimals, or fractions.	$\sqrt{2304}^{48}$ $\sqrt{1521}^{39}$	$4x + 51 = 251$ $x = 50$
D4	1) $4 + 2 = 6$ 2) $3 - 1 = 2$ 3) $2 + -1 = 1$ 4) $-4 + 4 = 0$ 5) $-6 + -3 = -9$ 6) $3 + -6 = -3$	$\sqrt{784}^{28}$ $\sqrt{8464}^{92}$	$4x + 24 = 88$ $x = 16$
Square Root Algorithm Trinomial D5	1) $-4 + 2 = -2$ 2) $-1 + -5 = -6$ 3) $-6 + 1 = -5$ 4) $-7 + 0 = -7$ 5) $-9 + 3 = -6$ 6) $-3 + 6 = 3$	Answer is on the card.	$x + 8x + 4x = 5850$ $x = 450$
D6	1) $7 + -3 = 4$ 2) $-7 + 3 = -4$ 3) $-3 + 7 = 4$ 4) $-3 + -7 = -10$	$\sqrt{398161}^{631}$ $\sqrt{187489}^{433}$	$x + (x + 3) + 2x + 2(x + 3) = 13$ $x = 9$
D7	1) -18.77 2) .8 3) -8.17 4) .69 5) -4.86 6) -26.439	$\sqrt{232324}^{482}$ $\sqrt{25281}^{159}$	$3x + x + (3x + 1) = 15$ $x = 2$
D8	1) -.817 2) -.98 3) .23 4) .69 5) .94 6) -1.46	$\sqrt{127449}^{357}$ $\sqrt{970225}^{985}$	$x + 4x + (4x - 1) = 17$ $x = 2$
D9	Answers will vary and could include decimals, or fractions.	$\sqrt{567009}^{753}$ $\sqrt{66564}^{258}$	$x + (x + 1) + (x + 2) = 114$ $x = 37$
D10	Answers will vary and could include decimals, or fractions.	$\sqrt{273529}^{523}$ $\sqrt{660969}^{813}$	$x + (x + 2) + (x + 4) = 159$ $x = 51$

	Left Side of the Card	Right Side of the Card	Application
D 11	Answers will vary.	$\sqrt[25]{625}$ $\sqrt[43]{1849}$	Answer is on the card
D12	Answers will vary.	$\sqrt[34]{1156}$ $\sqrt[18]{324}$	1) x = 5 2) x = 6 3) x = 4 4) x = 3
D 13	Answers will vary.	$\sqrt[125]{15625}$ $\sqrt[231]{53361}$	1) x = 7 2) x = 4 3) x = 1 4) x = 2
D 14	Answers will vary.	$\sqrt[345]{119025}$ $\sqrt[521]{271441}$	1) x = 2 2) x = 1 3) x = 1 4) x = 7
Special Cases E 1	Answer is on the card.	Answer is on the card	1) x = 6 2) x = 6 3) x = 8 4) x = 5
E 2	Answers will vary.	$\sqrt[600]{360000}$ $\sqrt[500]{250000}$	1) x = 4 2) x = 6 3) x = 5 4) x = 1
E 3	Answers will vary.	$\sqrt[630]{396900}$ $\sqrt[320]{102400}$	1) x = 6 2) x = 10 3) x = 10 4) x = 5
E 4	Answers will vary.	$\sqrt[304]{92416}$ $\sqrt[501]{251001}$	1) x = 6 2) x = 4 3) x = 2 4) x = 0
E 5	1) commutative + 2) identity x 3) associative x 4) identity x 5) distributive 6) identity +	$\sqrt[404r2]{163218}$ $\sqrt[506r3]{256039}$	1) x = 6 2) x = 7 3) x = 0 4) x = 3
E 6	1) commutative + 2) distributive 3) associative + 4) identity x 5) associative + 6) commutative +	$\sqrt[803r1]{644810}$ $\sqrt[207r4]{42853}$	x + 2x = x + 14, x = 7 1) 7 2) 14 3) 21
E 7	1) identity + 2) distributive 3) commutative x 4) distributive 5) associative x 6) commutative +	$\sqrt[3201]{10246401}$	x + 21 = 4x + 3, x = 6 27 days
E 8	Bones Card Game	$\sqrt[4502]{20268004}$	3x + 4 = 2x + 10 x = 6 \$22
E 9	Bones Card Game	$\sqrt[6020]{36240400}$	x + 3x - 2x + 7 = x + 15 x = 8 inches
Squares to Cubes F 1	1) -3 2) -5 3) -20 4) -12	46,656 3,125 81 256	Answer is on the card
F 2	1) -11 2) -2 3) -8 4) -25	7 19 37 61 91	x = 9 Math = 3 Language = 9 Cultural = 5
F 3	1) + 9 2) +13 3) +10 4) + 17	127 169 217 271	x = 20 Lettuce = 20 Carrots = 5 Beans = 3
F 4	1) -5 2) +11 3) +40 4) -0.6 5) 10.373 6) 35.0823 When subtracting a negative the 2 negative signs result in addition.	10[(10x10)+(4x10)+(10x4)+(4x4)] + 4[(10x10)+(4x10)+(10x4)+(4x4)] = 2744	x = 6 Mon. = 3 Tues. = 6 Wed = 2
F 5	A and E, D and G H and C F and B	3 ³ + 3(3 ²) + 3(3 ¹) + 1 ³ = 64 6 ³ + 3(6 ²) + 3(6 ¹) + 1 ³ = 343 8 ³ + 3(8 ²) + 3(8 ¹) + 1 ³ = 729	x = 4 Joaquin = 2 John = 4
F 6	Copy symbols on the card.	5 ³ + 3(5 ²) + 3(5 ¹) + 1 ³ = 216 4 ³ + 3(4 ²) + 3(4 ¹) + 1 ³ = 125 7 ³ + 3(7 ²) + 3(7 ¹) + 1 ³ = 512	x = 8 Peter = 5 Parker = 2 Doris = 1
F 7	1) x > -1 2) x ≤ 22 3) x < 9 4) x ≥ -8 5) x > 40	4 ³ + 3(4 ² x3) + 3(3 ² x4) + 3 ³ = 343 (Binomial cube, numerically)	x = 9 Ms. Arbiter = 5 Ms. Jodi = 3 Ms. Olga = 11

	Left Side of the Card	Right Side of the Card	Application
F 8	1) $x \geq -5$ 2) $x < 8$ 3) $x > -2$ 4) $x \geq 19$ 5) $x < 90$	$4^3 + 3(4^2 \times 3) + 3(3^2 \times 4) + 3(4^2 \times 2) + 6(4 \times 3 \times 2) + 3^3 + 3(3^2 \times 2) + 3(4 \times 2^2) + 3(3 \times 2^2) + 2^3 = 729$ (Trinomial cube, numerically)	$x = 5$ minute 1 = 8 minute 2 = 3 minute 3 = 1
F 9	1) $x > 3$ 2) $y \geq -1$ 3) $z \leq 14$ 4) $x \geq 17$ 5) $y > -24$ 6) $z \geq 1$	$2^3 + 3(2^2 \times 4) + 3(4^2 \times 2) + 4^3 = 216$ $3^3 + 3(3^2 \times 5) + 3(5^2 \times 3) + 5^3 = 512$ $5^3 + 3(5^2 \times 4) + 3(4^2 \times 5) + 4^3 = 729$	$x = 12$ card game apps 12
F 10	1) $z > -18$ 2) $a < 7$ 3) $b \leq -13$ 4) $c < -20$ 5) $p > 0$ 6) $b < 8$	$3^3 + 3(3^2 \times 3) + 3(3^2 \times 3) + 3^3 = 216$ $4^3 + 3(4^2 \times 4) + 3(4^2 \times 4) + 4^3 = 518$ $7^3 + 3(7^2 \times 2) + 3(2^2 \times 7) + 2^3 = 729$	$x = 9$ grasshoppers = 3 ladybugs = 9 crickets = 5
Cube Roots G 1	1) 3 2) -2 3) 4 4) -4	For every three digits in the radicand, there will be one digit in the root.	$x = -5$
G 2	Answer is on the card	Answer is on the card	$x = 48$
G 3	1) -4 2) +8 3) +3 4) -5 5) +2 6) -3	Answer is on the card	$x = -6$
G 4	1) -18.2 2) -2 3) +2.813 4) -22.7272 5) -52 If the signs are the same the answer is positive, if they are different the quotient is negative.	$\sqrt[3]{148877}^{\quad 53}$ $\sqrt[3]{438976}^{\quad 76}$	Elsie = 613 gallons Bossie = 851 gallons
G 5	1) -24 2) -69 3) -19.2 4) -3 5) -27.52 6) -22.5	$\sqrt[3]{262144}^{\quad 64}$ $\sqrt[3]{50653}^{\quad 37}$	$x = 19$ inches
G 6	Answer is on the card.	Teacher lesson	54 students in each bus
G 7	1) -160 2) -6 3) -9.46 4) -.1323 5) -3/8 6) -.125 A positive x negative = negative	Answer is on the card.	82 games
G 8	Answer is on the card.	$\sqrt[3]{71991296}^{\quad 416}$	She painted for 4 hours
G 9	1) 14 2) 555 3) 2.812 4) 479.37 5) $3\frac{1}{2}$ 6) .1875	$\sqrt[3]{43614208}^{\quad 352}$	215 subscriptions
G 10	1) 13,608 2) -840 If the number of negatives is odd the product is negative. If the number of negatives is even, the product is positive.	$\sqrt[3]{12977875}^{\quad 235}$	9 years old
Alternative Bases H 1	1) 4 2) 9 3) 120 4) 50	1,2,3,10,11,12,13,20,21,22,23,30,31,32,33,100,101,102,103,110	Answer is on the card.
H 2	1) \$18 \$54 2) \$6.45 \$49.45	1) 389_{10} 2) 21_{10} 3) 179_{10} 4) 26_{10}	42.5 hours
H 3	1) 360 ft ² 1,560 ft ² 2) 6 days (and a little more)	1) 954_{10} 2) 493_{10} 3) 488_{10} 4) 152_{10}	240 words in 30 minutes
H 4	1) 6 coconuts 2) 24 problems	1) 373_{10} 2) 41_{10} 3) 333_{10} 4) 70_{10}	35 defective parts
H 5	1) 12 pages 48 pages 2) 21 boxes	1) 4134_5 2) 5545_6 3) 1001_2 4) 1010_4	300 miles

	Left Side of the Card	Right Side of the Card	Application	
H 6	1) 20 pages 2) 20 tasks	1) 11120_3 3) 675_8	2) 10220_7 4) 2014_5	2 hours 27 minutes
H 7	1) \$35 \$42 2) \$50	1) 10100_2 3) 677_8	2) 7220_9 4) 1005_6	100 tablets
H 8	1) 4 days 2) 15 gallons of paint	1) 11120_3 3) 675_8	2) 10220_7 4) 2014_5	4320 women students
H 9	1) \$488.88 2) \$1333.33	1) 13021_4 3) 4787_9	2) 10002_7 4) 20_3	\$18.45
H 10	1) 88 books 2) 20 children	1) 12421_5 3) 224202_6	2) 202011_3 4) 134026_7	129 inches 10 ft 9 in

H 11	1) 33% 2) 25%	1) 10_{10} 3) 16_{10}	2) 15_{10} 4) 20_{10}	\$8.66	
H 12	1) 60% 2) 69%	1) 14_{10} 4) 19_{10}	2) 11_{10} 5) 28_{10}	3) 14_{10} 6) 12_{10}	24 minutes
H 13	1) 57% 2) .2%	1) $9B\ 6\ 5_{12}$ 3) $2\ 0\ 6_{14}$	2) $1\ 5\ 6\ 3_{16}$ 4) $3\ 7\ 7\ 9B_{13}$	\$2,388 in 2 months	
H 14	1) 44% 2) approximately 19%	1) $9A\ 3\ 9_{11}$ 3) $1\ 8\ 5_{16}$	2) $9D\ 0\ 9B_{15}$ 4) $3\ 3\ 2_{12}$	2310 miles	

ETCMontessori®

979 Reseda Dr.
Houston, TX 77062

877.409.2929
www.ETCmontessoriOnline.com