| PARTNER A (left side)	TEAM NAME	PARTNER B (right side)

What's Wrong With Camping On the Sahara Desert?

Simplify each expression. Partner A should do the left side and Partner B the right side. After completing each set, find matching answers. One will have a letter and the other a number. Write the letter in the matching numbered box at the bottom of the page.
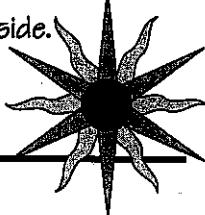
SET 1

E. $(7n+2)+(3n-8)$

S. $(4n^2-11n)+(5n^2-4n)$

T. $(6n^2-5n+1)+(n^2+9n-8)$

I. $(12n^2+3n-3)+(-5n^2-3n+16)$

SET 1

8. $(2n^2+15)+(5n^2-2)$

13. $(6n-1)+(4n-5)$

1. $(3n^2-7n+4)+(4n^2+11n-11)$

16. $(10n^2-7n-2)+(-n^2-8n+2)$

SET 2

T. $(5k+16)-(2k+7)$

E. $(15k^2+4k+2)-(8k^2-k-8)$

H. $(9k^2-4k+1)-(9k^2-6k-7)$

I. $(7k^2-6k-2)-(-4k^2+k+9)$

SET 2

2. $(8k+13)-(6k+5)$

10. $(15k^2+2k-1)-(4k^2+9k+10)$

5. $(5k^2+6k+3)-(-2k^2+k-7)$

15. $(6k^2-k-4)-(6k^2-4k-13)$

SET 3

T. $(2x^3+7x^2-4x)+(3x^3-2x^2-5x)$

E. $(9x^4-x^2+9)+(-x^4+4x^2-3)$

N. $(3x^4+4x^2-5x)+(-3x^4+6x^3+7x)$

S. $(-8x^2-11xy+y^2)+(5x^2-2xy-7y^2)$

SET 3

3. $(3x^4+9x^2+2)+(5x^4-6x^2+4)$

11. $(7x^3-x^2+10x)+(-x^3+5x^2-8x)$

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

9. $(-5x^2-16xy-5y^2)+(2x^2+3xy-y^2)$

SET 4

A. $(7a^3+8a^2-2a)-(4a^3-3a^2-9a)$

N. $(-2a^3+9a^2-4)-(-7a^3+7a-4)$

H. $(-a^2-5ab-8b^2)-(6a^2-9ab+2b^2)$

T. $(2a^2-3ab+3b^2)-(11a^2+8ab-b^2)$

SET 4

14. $(8a^3+7a^2-9a)-(3a^3-2a^2-2a)$

6. $(-2a^3+11a^2-2)-(-5a^3-7a-2)$

12. $(-a^2-4ab-5b^2)-(8a^2+7ab-9b^2)$

4. $(5a^2-2ab-b^2)-(12a^2-6ab+9b^2)$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

12.4

What Did the Boy Measuring Stick Say When He Saw the Girl Measuring Stick?

Simplify the product, then cross out the letter pair next to the correct answer. For each letter pair that you DON'T cross out, write the upper case letter in the box containing the lower case letter.

1 $7(2m^2 + 5)$

2 $-3(8m^2 - 4m)$

3 $2m(m^3 + 9)$

4 $m^2(-5m - 6)$

Answers 1-4

j · O	$-5m^4 - 6m$
b · L	$2m^4 + 18m$
g · V	$14m^2 + 35$
o · E	$-24m^2 - 12$
m · F	$-5m^3 - 6m^2$
e · A	$2m^4 + 18m^2$
p · U	$-24m^2 + 12m$

9 $x^2y(x^2 - y^2)$

10 $-5xy^2(-x^3y + 4xy^3)$

11 $9xy(2x^2y + 9xy - 4xy^2)$

12 $-x^2y^2(5x^2 - 8xy + y^2)$

Answers 9-12

i · T	$-5x^4y^3 + 8x^3y^3 - 2x^2y^3$
n · D	$x^4y - x^2y^3$
c · S	$-5x^4y^2 + 8x^3y^3 - x^2y^4$
p · R	$18x^3y^2 + 81xy^2 - 36x^2y^2$
I · B	$18x^3y^2 + 81x^2y^2 - 36x^2y^3$
d · W	$x^4y + xy^3$
k · N	$5x^4y^3 - 20x^2y^5$

5 $9(4a^2 - a + 2)$

6 $3a(12 + 5a - a^2)$

7 $-4a^2(7a^2 + 15a - 1)$

8 $2a^3(6a^2 - 2a + 3)$

Answers 5-8

g · T	$-28a^4 - 60a^3 - 4a$
i · L	$36a + 15a^2 - 3a^3$
d · H	$12a^5 - 4a^4 + 6a^3$
f · T	$36a^2 - 9a + 18$
b · I	$12a^5 - 8a^4 - 6a^3$
a · S	$-28a^4 - 60a^3 + 4a^2$
m · E	$36a^2 + 15a + 18$

13 $3cd^4(2c^4 - 5c^2d^2 - 18d^4)$

14 $8c^2d^2(3c^4d^3 + 10c^3d^4 + 11)$

15 $-9c^7d^3(16c^5d^2 - 5c^2d^5)$

16 $4c^5(3c^2 - 20cd - 3d^2)$

Answers 13-16

| c · S | $24c^6d^5 + 80c^5d^6 + 88c^2d^2$ |
n · T	$6c^5d^4 - 15c^2d^6 + 54cd^8$
h · A	$-144c^{12}d^5 + 45c^9d^8$
k · R	$6c^5d^4 - 15c^3d^6 - 54cd^8$
f · N	$24c^6d^5 + 80c^2d^6 + 88cd^2$
q · S	$12c^7 - 80c^6d - 12c^5d^2$
l · M	$-144c^{12}d^6 + 45c^5d^8$

| a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q

Quadratic graFUN

Find the vertex of the graph of the function and write its coordinates in the outlined cells of the table. Then find points on each side of the vertex. Plot the points and draw the graph.

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

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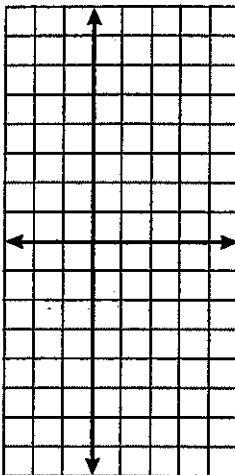
2 $y = -x^2 + 2x + 5$

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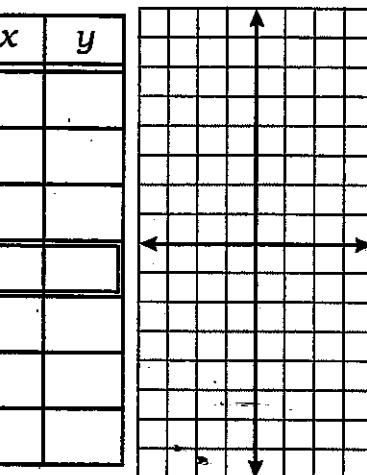
3 $y = x^2 + 6x$

x	y
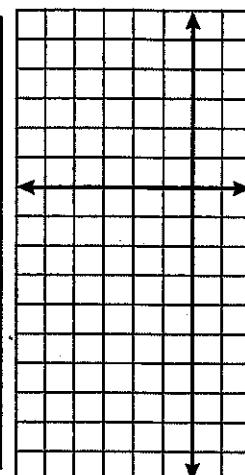
4 $y = 2x^2 + 8x - 3$

x	y
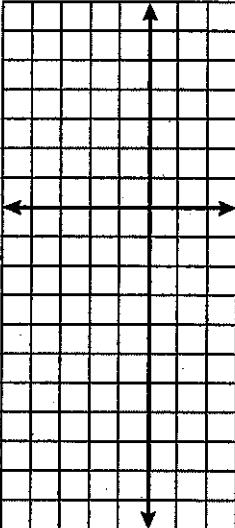
5 $y = -3x^2 + 6x - 1$

x	y
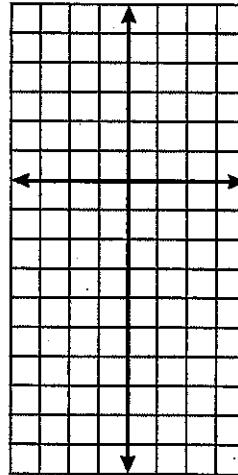
6 $y = \frac{1}{2}x^2 - 3x + 2$

x	y
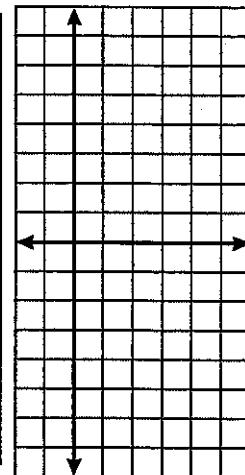
7 Suppose you have 20 meters of fence to go around a rectangular garden. The width and length of the garden are represented in the figure below, where w = width.

$$10 - w$$

w [shaded rectangle]
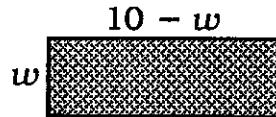
The area of the garden is given by the formula: $A = 10w - w^2$.

Complete the table and graph to show how area depends on width.

w (m)	A (m²)
1	
2	
3	
4	
5	
6	
7	
8	
9	

Area (m²) vs Width (m)
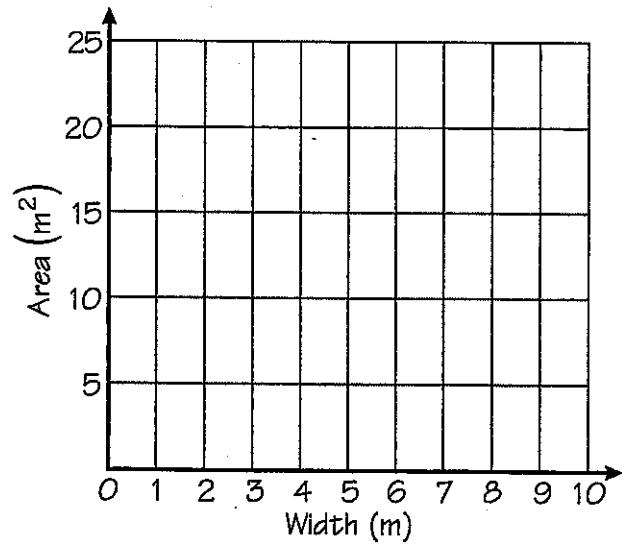
BOOKS NEVER WRITTEN

How to Make Big Bucks by

| 4 | 12 | 13 | 5 | 10 | 9 | 6 | 8 | 13 | 1 | 12 |
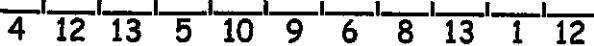
Inside a Garbage Truck by

| 12 | 14 | 7 | 13 | 2 | 10 | 15 | 14 | 5 | 9 | 2 | 3 |
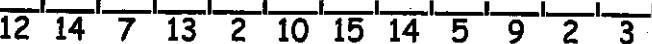
Sculpting the Gods of Ancient Rome, Quite Beautifully by

| 11 | 14 | 15 | 2 |
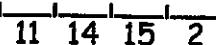
Solve the equation by factoring, then find your solution in the answer column. Each time the exercise number appears in the code, write the letter of the solution in the space above it. If the answer has a ●, leave the space blank.

1 $x^2 + 7x + 12 = 0$

2 $a^2 - 17a + 30 = 0$

3 $w^2 - 81 = 0$

4 $y^2 + 3y - 10 = 0$

5 $g^2 - 5g - 24 = 0$

6 $m^2 - 7m = 0$

7 $2d^2 + 11d + 5 = 0$

8 $3x^2 - 8x - 11 = 0$

9 $5t^2 + 9t - 18 = 0$

10 $4n^2 + 7n + 3 = 0$

11 $12c^2 + 8c + 1 = 0$

12 $9k^2 + 45k = 0$

13 $8p^2 + 2p - 15 = 0$

14 $x^2 + 10x + 25 = 0$

15 $4y^2 - 49 = 0$

Answers 1–8

W $\left\{-5, -\frac{1}{2}\right\}$	**M** $\{3, 10\}$	**L** $\{-3, 8\}$	**E** $\{2, 15\}$
● $\left\{-11, \frac{1}{3}\right\}$	**C** $\{-4, -3\}$	**R** $\left\{-1, \frac{11}{3}\right\}$	● $\{0, 7\}$
P $\{-5, 2\}$	**U** $\{-4, 6\}$	**N** $\{\pm 9\}$	**D** $\{-1, 10\}$

Answers 9–15

F $\left\{-3, \frac{1}{4}\right\}$	**H** $\{-5, 0\}$	● $\left\{-\frac{5}{2}, -\frac{3}{4}\right\}$	**O** $\{-5\}$
I $\left\{-\frac{3}{2}, \frac{5}{4}\right\}$	**V** $\left\{\pm \frac{7}{2}\right\}$	**J** $\left\{-\frac{1}{2}, -\frac{1}{6}\right\}$	**G** $\left\{-6, \frac{3}{5}\right\}$
S $\left\{-\frac{1}{3}, -\frac{1}{4}\right\}$	**T** $\left\{-3, \frac{6}{5}\right\}$	**A** $\left\{\pm \frac{4}{7}\right\}$	● $\left\{-1, -\frac{3}{4}\right\}$

Quadratic Equations and Functions:
Solving Quadratic Equations by Factoring (Equations in Standard Form)

14.7

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What Happened When the Ghost
DISAPPEARED In a FOG?

1 $2x^2 + 7x + 6 = 0$

2 $5b^2 - 11b - 12 = 0$

3 $m^2 - 7m + 2 = 0$

4 $2h^2 - 5h - 11 = 0$

5 $3x^2 + 2x = 8$

6 $n^2 + 8 = 15n$

7 $4a^2 + 9a + 1 = 0$

8 $5k^2 = 2k + 18$

9 $8t^2 + 6t = 35$

10 $3y^2 + 7 = 2y$

11 $2q^2 = 14 - q$

12 $0.5x^2 - 3x - 9.4 = 0$

Answers 1-4
- c · L 3, −0.8
- f · A 6, −1
- d · S 3.91, −1.41
- g · R −1.5, −2
- l · T −2, 6
- e · O 6.7, 0.3
- b · I 5.44, −1.24

Answers 5-8
- c · T 1.83, −2.43
- h · G 2.11, −1.71
- i · L 1.33, −2
- g · S 12.75, 2.25
- a · N −0.12, −2.13
- j · I 0.67, −4
- k · E 14.45, 0.56

Answers 9-12
- i · M 7.64, −3.44
- h · T no solution
- k · S 3.16, −1.56
- m · H 8.27, −2.27
- k · N 1.75, −2.5
- i · D 2.41, −2.91
- e · W 1.5, −2.25

a	b	c	d	e	f	g	h	i	j	k	l	m

EXTRA: Can You Stop In Time?

When a driver needs to stop a car, the approximate stopping distance d (in feet) is given by the formula: $d = 0.05v^2 + 2.2v$, where v is the speed of the car (in miles per hour). Suppose a car travels 200 feet before stopping ($d = 200$). How fast was the car traveling?

What Did Dr. Drone Say To the Guy Who Thought He Was a $100 Bill?

Simplify the expression and find your answer in the adjacent answer column. Write the letter of the exercise in the box that contains the number of the answer. Assume that all variables represent nonnegative numbers.

G. $\sqrt{12}$

I. $\sqrt{50}$

O. $\sqrt{45}$

E. $\sqrt{600}$

S. $\sqrt{98}$

U. $\sqrt{48}$

O. $\sqrt{125}$

W. $\sqrt{162}$

9. $5\sqrt{2}$
2. $5\sqrt{5}$
35. $6\sqrt{2}$
33. $4\sqrt{3}$
14. $10\sqrt{6}$
20. $2\sqrt{3}$
5. $4\sqrt{5}$
23. $9\sqrt{2}$
36. $3\sqrt{5}$
19. $5\sqrt{3}$
4. $7\sqrt{2}$

A. $2\sqrt{18}$

O. $8\sqrt{28}$

G. $-3\sqrt{1000}$

E. $5\sqrt{75}$

D. $-4\sqrt{490}$

L. $9\sqrt{72}$

H. $-7\sqrt{80}$

O. $3\sqrt{144}$

6. 36
37. $-30\sqrt{3}$
18. $6\sqrt{2}$
21. $25\sqrt{3}$
16. $-28\sqrt{6}$
26. $54\sqrt{2}$
29. $16\sqrt{7}$
13. $-28\sqrt{5}$
24. $45\sqrt{3}$
11. $-30\sqrt{10}$
38. $-28\sqrt{10}$

Y. $\sqrt{16n^2}$

N. $\sqrt{20n^2}$

H. $\sqrt{49n^3}$

T. $\sqrt{63n^3}$

O. $\sqrt{36n^4}$

L. $-\sqrt{200n^4}$

P. $\sqrt{900n^5}$

G. $\sqrt{60n^8}$

17. $7n\sqrt{n}$
7. $30n^2\sqrt{n}$
15. $3n^2\sqrt{5n}$
10. $2n\sqrt{5}$
25. $-10n^2\sqrt{2}$
12. $3n\sqrt{7n}$
27. $4n^4\sqrt{5}$
1. $2n^4\sqrt{15}$
31. $4n$
32. $6n^2$
30. $-10n^2\sqrt{2n}$

O. $\sqrt{25x^2y}$

D. $\sqrt{90x^4y^2}$

G. $\sqrt{81x^3y^4}$

I. $\sqrt{24x^2y^6}$

C. $\sqrt{15xy^3}$

P. $3\sqrt{500x^8y^2}$

N. $-2\sqrt{121x^3y}$

H. $4\sqrt{44x^6y^5}$

8. $30x^4y\sqrt{5}$
34. $-22x^2\sqrt{xy}$
28. $3x^2y\sqrt{10}$
5. $8x^3y^2\sqrt{11y}$
22. $xy\sqrt{15}$
24. $2xy^3\sqrt{6}$
37. $5x\sqrt{y}$
19. $-22x\sqrt{xy}$
16. $y\sqrt{15xy}$
3. $30y^4\sqrt{5y}$
35. $9xy^2\sqrt{x}$

1	2	3	4	5	6	7	8	9	10	11

12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38

Just Before Giving Birth to Her First Child, Why Did Mrs. Plum Yell: "Shouldn't, Couldn't, Wouldn't, Didn't, Can't"?

Simplify the expression, then find your answer in the answer column. Write the two letters next to the answer in the two boxes above the exercise number at the bottom of the page.

1. $\dfrac{4u+1}{2u} + \dfrac{5u-2}{7u^2}$

2. $\dfrac{20}{u^2-16} + \dfrac{3}{u+4}$

3. $\dfrac{u}{u+5} + \dfrac{2u}{u^2+8u+15}$

4. $\dfrac{15}{9u+2} + 4$

Answers 1-4

RE $\dfrac{u^2-7}{(u+3)(u+5)}$ **SK** $\dfrac{28u^2+15u-8}{14u^2}$

AS $\dfrac{3u+8}{(u+4)(u-4)}$ **SH** $\dfrac{36u+23}{9u+2}$

TO $\dfrac{20u+8}{9u+2}$ **NT** $\dfrac{28u^2+17u-4}{14u^2}$

CT $\dfrac{u}{u+3}$ **OL** $\dfrac{6u+11}{(u+4)(u-4)}$

---

5. $\dfrac{11a-2}{a^2-4a-12} - \dfrac{8}{a-6}$

6. $\dfrac{5}{a-8} - \dfrac{4}{3a+1}$

7. $\dfrac{10}{a-3} + \dfrac{a+8}{2a+3}$

8. $\dfrac{a}{4a^2-1} + \dfrac{4}{2a-1} + 2$

Answers 5-8

NS $\dfrac{11a+37}{(a-8)(3a+1)}$ **IN** $\dfrac{5a+12}{(a+2)(a-6)}$

ER $\dfrac{a^2+22a+9}{(a-3)(2a+3)}$ **NG** $\dfrac{8a^2+9a+2}{(2a+1)(2a-1)}$

VI $\dfrac{3}{a+2}$ **SE** $\dfrac{4a^2+8a+3}{(2a+1)(2a-1)}$

ED $\dfrac{9a+40}{(a-8)(3a+1)}$ **EW** $\dfrac{a^2+25a+6}{(a-3)(2a+3)}$

---

9. $\dfrac{1}{x^2-8x+7} - \dfrac{x+7}{x-1}$

10. $\dfrac{x}{x-4} + \dfrac{18}{x^2+x-20} + \dfrac{2}{x+5}$

11. $\dfrac{9x}{3x-2} - \dfrac{3x-2}{x+1}$

12. $\dfrac{3x^2+7x}{x^2+8x-9} - \dfrac{2x}{x+9}$

Answers 9-12

SE $\dfrac{12x-5}{(3x-2)(x+1)}$ **RA** $\dfrac{x}{x-1}$

OO $\dfrac{x^2+1}{x+9}$ **IO** $\dfrac{-x^2+50}{(x-1)(x-7)}$

HA $\dfrac{x+2}{x-4}$ **LO** $\dfrac{x+1}{x+5}$

RA $\dfrac{-2x^2+51}{(x-1)(x-7)}$ **CO** $\dfrac{21x-4}{(3x-2)(x+1)}$

4		**7**		**2**		**10**		**5**		**8**		**11**		**1**		**12**		**3**		**9**		**6**	

What Did Klutz Say After He Cracked An Egg on His Head?

Write the quotient as a polynomial or mixed expression. Cross out the letters under the answer. When you finish, write the remaining letters in the spaces at the bottom.

1. $\dfrac{x^2 + 9x + 20}{x + 4}$

2. $\dfrac{2m^2 + 5m - 18}{m - 2}$

3. $\dfrac{x^2 - 7x + 13}{x - 5}$

4. $\dfrac{m^2 - m + 8}{m - 6}$

5. $\dfrac{3x^2 - 4x - 22}{x + 2}$

6. $\dfrac{m^2 + 5 + 12m}{m + 9}$

7. $\dfrac{x^2 + 7}{x - 3}$

8. $\dfrac{2m^2 - 5m - 2}{2m + 1}$

9. $\dfrac{6x^2 - 5x + 14}{3x - 4}$

10. $\dfrac{-10 + m + 21m^2}{7m + 5}$

Odd-Numbered Answers

$3x - 8 - \dfrac{3}{x+2}$	$3x - 10 - \dfrac{2}{x+2}$	$x + 5$	$x + 3 + \dfrac{16}{x-3}$	$2x + 1 - \dfrac{5}{3x-4}$	$x - 2 + \dfrac{3}{x-5}$	$2x + 1 + \dfrac{18}{3x-4}$	$x + 4 + \dfrac{15}{x-3}$
TH	AT	ST	EP	EY	OU	FO	OL

Even-Numbered Answers

$m + 5 + \dfrac{38}{m-6}$	$m - 2 + \dfrac{3}{2m+1}$	$m + 3 - \dfrac{22}{m+9}$	$3m - 2$	$m + 2 - \dfrac{10}{m+9}$	$2m + 9$	$m + 4 + \dfrac{18}{m-6}$	$m - 3 + \dfrac{1}{2m+1}$
TE	KS	IT	SO	ON	UP	ME	GG

[ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Rational Expressions:
Dividing Polynomials