

2015 Holiday Logic Problems

Answer Keys



Logic Study Guide created by Education Test Creators
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Wordoku

Fill in the Wordoku so that every row, every column, and every box contains the letters in the word(s) listed below each puzzle.

Just like in Sudoku, no letters may be repeated in each row, column or box.

S	A	O	R	C	N
C	N	R	O	S	A
O	C	A	S	N	R
R	S	N	C	A	O
A	O	C	N	R	S
N	R	S	A	O	C

ACORNS

Y	U	B	T	O	N
O	T	N	U	Y	B
B	O	U	Y	N	T
N	Y	T	O	B	U
T	N	Y	B	U	O
U	B	O	N	T	Y

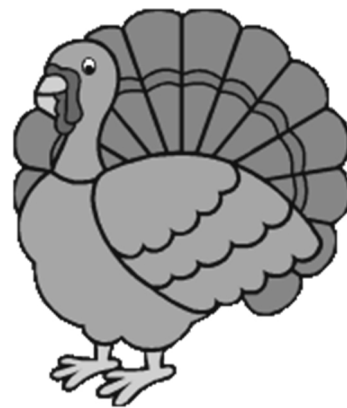
BOUNTY

H	S	A	T	N	K
K	T	N	S	H	A
A	K	T	N	S	H
N	H	S	A	K	T
T	N	H	K	A	S
S	A	K	H	T	N

THANKS


























Y	E	K	T	U	R
R	U	T	E	Y	K
K	Y	E	U	R	T
U	T	R	Y	K	E
T	R	Y	K	E	U
E	K	U	R	T	Y






TURKEY



THANKSGIVING SUM IT ALL UP

The sum of the objects in each row total the number to the right. The objects in each column add up to the sum at the bottom of each column. Only whole positive integers are used. What is the value of each object?

					15
					18
					17
					14
					12
19	15	16	13	13	

	=	3
	=	2
	=	4
	=	5
	=	1

THANKSGIVING CRYPTOFAMILY

Cryptograms are substitution codes. Each letter in the cryptogram stands for another letter in the alphabet. No letter represents itself or more than one letter. Find the hidden message in the cryptofamily.

Cryptofamily 1 - Hint: words are associated with Thanksgiving:

PILGRIMS
LYKAXYVO

TURKEY
RHXFQWQ

MAYFLOWER
VCQBKGEWX

CRANBERRIES
IXCUDWXXYWO

PLYMOUTH
LKQVHRZ

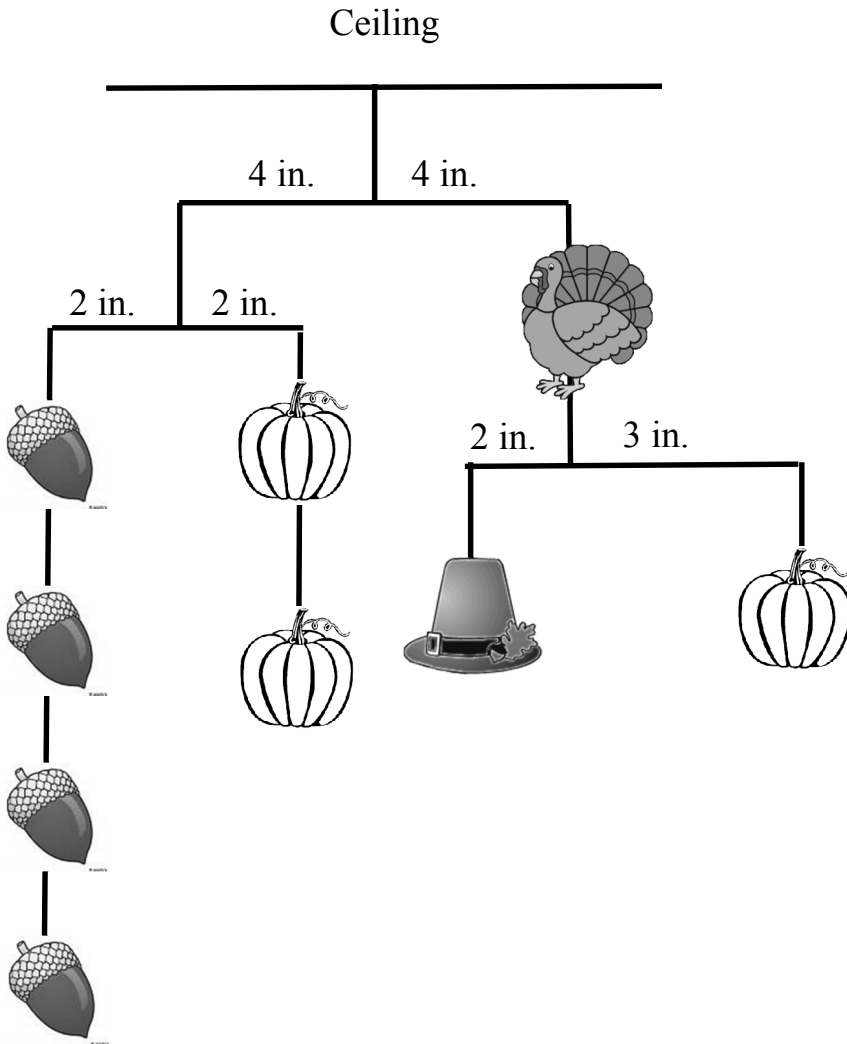
PUMPKIN PIE
LHVLFYU LYW

NOVEMBER
UGJWVDWX




STUFFING
ORHBBYUA



THANKSGIVING DECORATIONS



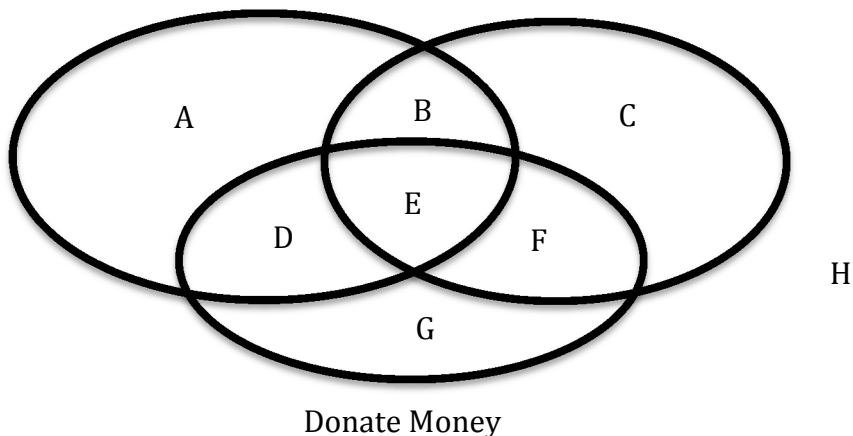
Amy is hanging decorations for her Thanksgiving dinner. If the pilgrim hat weighs 3 grams, can you determine the weight of each figure on the mobile so that all the objects are balance?

	= 1 gram
	= 2 grams
	= 4 grams

Holiday Helpers:

Donate Food

Donate Time



4% of those surveyed were not able to help this year.

$$H = 500(.04) = 20$$

110 people helped in all three ways.

$$E = 110$$

20 people donated money only, but were hoping to do more next year.

$$G = 20$$

The number of people who donated food and money, but could not volunteer time was 10 less than 5 times the number of people who volunteered time and donated money.

$$D = 5F - 10$$

220 people donated money and participated in at least one other way.

$$D + E + F = 220 ; F = 20 ; D = 90$$

180 of the people surveyed did not volunteer their time.

$$A + D + G + H = 180 ; A = 50$$

100 people participated in only 1 way.

$$A + C + G = 100 ; C = 30$$

How many of the people surveyed did not donate money?

$$A + B + C + D + E + F + G + H = 500 ; B = 160$$

$$A + B + C + H = 260$$

How many of the people surveyed donated food?

$$A + B + D + E = 410$$

How many of the people surveyed had donated food and volunteered time but did not donate money?

$$A + D + G + H = 180 ; A = 50$$

What percentage of the people surveyed did not donate food?

$$\frac{C+F+G+H}{5}(100\%) = 18\%$$

What fraction of those surveyed participated in more than one way?

$$\frac{B+D+E+F}{5} = \frac{1}{2}$$

Santa's Reindeer

Santa always leaves plans for his elves to determine the order in which the reindeer will pull his sleigh. This year, for the European leg of his journey, his elves are working with the following instructions, which will form a single line of nine reindeer:

1. Comet is behind Blitzen and Cupid, and in front of Dancer and Donder.
2. Blitzen is in front of Cupid, Donder, Vixen, and Dancer.
3. Donder is behind Vixen and Dancer, and in front of Dasher and Prancer.
4. Rudolph is behind Prancer, Cupid, Donder, Blitzen, and Dasher.
5. Prancer is immediately in front of Rudolph, and just behind Dasher.
6. Dasher is behind Donder, and in front of Prancer and Rudolph.
7. Vixen is in front of Dasher, Dancer, and Prancer, and is behind Comet.

Can you help the elves work out the order of the reindeer?

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Blitzen	o	x	x	x	x	x	x	x	x
Comet	x	x	o	x	x	x	x	x	x
Cupid	x	o	x	x	x	x	x	x	x
Dancer	x	x	x	x	o	x	x	x	x
Dasher	x	x	x	x	x	x	o	x	x
Donder	x	x	x	x	x	o	x	x	x
Prancer	x	x	x	x	x	x	x	o	x
Rudolph	x	x	x	x	x	x	x	x	o
Vixen	x	x	x	o	x	x	x	x	x



Blitzen, Cupid, Comet, Vixen, Dancer, Donder, Dasher, Prancer, and Rudolph

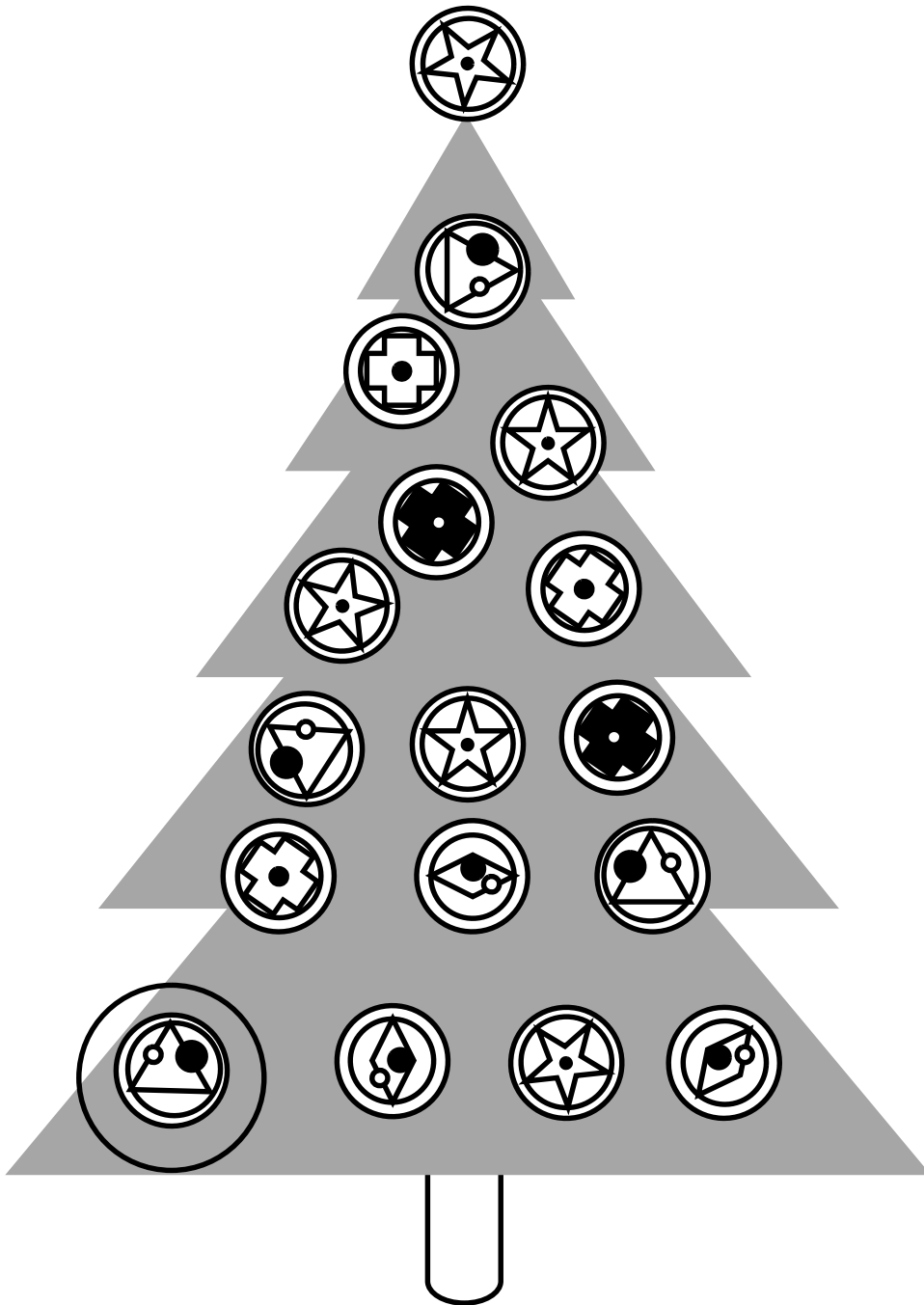
Sudoku

6	3	2	5	4	9	1	8	7
9	5	7	8	1	3	2	6	4
8	4	1	2	7	6	5	9	3
1	2	3	4	9	7	8	5	6
7	9	5	6	8	1	4	3	2
4	6	8	3	5	2	9	7	1
2	8	9	7	3	4	6	1	5
3	1	4	9	6	5	7	2	8
5	7	6	1	2	8	3	4	9

Wordoku

N	S	E	A	O	L	F	K	W
K	A	O	W	F	E	S	N	L
F	W	L	N	K	S	O	E	A
A	O	N	K	S	F	L	W	E
L	K	F	E	W	N	A	S	O
S	E	W	O	L	A	K	F	N
O	F	S	L	E	W	N	A	K
E	N	K	S	A	O	W	L	F
W	L	A	F	N	K	E	O	S

SNOWFLAKE



The Ornament Tree

Ornaments on the tree have the same pattern, but are rotated in a clockwise direction.
The ornament that does not follow the same pattern as the rest is a mirror image.

HOLIDAY CRYPTOGRAMS

Cryptograms are substitution codes. Each letter in the cryptogram stands for another letter in the alphabet. No letter represents itself or more than one letter. Find the hidden message in the cryptogram. Each cryptogram below uses a different substitution code.

Cryptofamily 2 - words associated with the Christmas Season.

NATIVITY
DVMCOCMT

EPIPHANY
GYCYQVDT

YULETIDE
TBUGMCHG

ADVENT WREATH
VHOGDM KPGVMQ

CHRISTMAS TREE
IQPCJMWVJ MPGG

BETHLEHEM
RGMQUQGQGW

BABY JESUS
RVRT ZGJBJ

STOCKINGS
JMFISCDEJ



Cryptogram 1

THERE IS NO BETTER TIME THAN NOW, THIS VERY CHRISTMAS
KQNUN RB WX SNKKNV KRVN KQJW WXF, KQRB ENUH LQURBKVJB

SEASON, FOR ALL OF US TO REDEDICATE OURSELVES TO THE
BNJBXW, OXU JTT XO DB KX UNMNMRLJKN XDUBNTENB KX KQN

PRINCIPLES TAUGHT BY JESUS CHRIST. IT IS THE TIME TO
YURWLRYTNB KJDPQK SH ANBDB LQURBK. RK RB KQN KRVN KX

LOVE THE LORD, OUR GOD, WITH ALL OUR HEART - AND OUR
TXEN KQN TXUM, XDU PXM, FRKQ JTT XDU QNJUK - JWM XDU

NEIGHBOR AS OURSELVES. - THOMAS S. MONSON
WNRPQSXU JB XDUBNTENB. - KQXVJB B. VXWBXW

DROPDOWN QUOTE

Each square represents one letter of a famous quote. The letters in each vertical column go into the squares directly below them, but not necessarily in the order they appear. A black square or thick line indicate spaces between words or the end of a word. When all the letters are in their correct place, a quote from a famous person is revealed.

A	F						E	C		A																	
G	H			A	B	B	E	I		E		E				A		A	A								
G	I			E	C	C	E	I	A	G		E	E			H	A	C	E	I	H	A	L				
I	N	D	I	H	E	E	E	I	F	N	G	I	F	F	C	H	D	E	G	O	M	A	N	A			
O	O	D	R	N	E	H	G	R	I	T	I	O	I	N	E	N	E	I	L	P	N	B	S	D			
T	S	E	T	R	E	I	I	V	T	U	R	T	O	S	O	S	O	L	R	S	T	E	S	E			
U	T	F	T	S	T	V	L	Y	V	Y	S	V	T	W	U	T	R	M	S	T	V	E	V	E			
G	O	D		N	E	V	E	R		G	I	V	E	S		S	O	M	E	O	N	E			A		
G	I	F	T		T	H	E	Y		A	R	E		N	O	T		C	A	P	A	B	L	E			
O	F		R	E	C	E	I	V	I	N	G		I	F		H	E		G	I	V	E	S				
U	S		T	H	E		G	I	F	T		O	F		C	H	R	I	S	T	M	A	S				
I	T		I	S		B	E	C	A	U	S	E		W	E		A	L	L		H	A	V	E			
T	H	E		A	B	I	L	I	T	Y		T	O		U	N	D	E	R	S	T	A	N	D			
A	N	D		R	E	C	E	I	V	E		I	T														

WORD LADDERS

Change the top word into the bottom word in each column by changing only one letter at a time to form a new word. Do not change the order of the letters. Proper names, slang and foreign words are not allowed. (Note - answers may vary.)

STAR

SEAR
BEAR
BEAT
BELT

BELL

BODY

BODE
BADE
BALE
BALL
BOWL
BOWL
FOWL
FOUL

SOUL

STAR

SEAR
FEAR
FEAT
FIAT
FIST
LIST
LIFT

GIFT

MAGI

MAGE
MAKE
BAKE
BABE

BABY



Christmas Word Problems Answer Key

1. $\frac{2}{43}$

2. $\frac{15}{182}$

3. 120








4. Rudolph's rate, 1080 km/h; wind, 120 km/h

Christmas KenKen Answer Key

3	1	5	6	7	2	4
5	2	1	3	6	4	7
2	6	3	5	4	7	1
1	3	7	4	5	6	2
6	5	4	7	2	1	3
4	7	2	1	3	5	6
7	4	6	2	1	3	5

Kakuro

Each row or column must add up to the the number provided above it or to the left. Numbers above the diagonals are sums of rows. Numbers below the diagonals are sums of columns. There are no zeros, and you may only use each digit 1 – 9 once in any given sum.

		23	4	24		3	6		42	3		26	13		17	7			
	4	18	8	1	9	4	1	3	11	9	2	4	1	3	13	9	4		
17	1	6	3	7	7	3	2	1	8	7	1	9	8	1	10	8	2	34	
12	3	9	12	8	4	9	2	1	6		6	16	6	9	1	7	1	6	3
			7	10	1	9	8	3	5	6	2	4		5	3	2	7	16	7
	11	17	10	1	2	7	10	2	8	7	5	3	2		24	1	4	8	2
	17	17	5	8	4				17	12	4	2	1	5		5	1	4	
22	8	3	9	2	20	3	7	16	9	3	4	17				11	2	9	
11	9	2	17	4	17	6	1	2	8	9	1	8	3						
	27	1	8	3	9	2	4	16		11	9	2	7		7	17	16		
		15	9	1	5	10	1	9	4		3	1	2	4	17	1	9	7	11
							10	7	3	23		3	27	4	1	2	8	9	3
		33	6					9	1	8	42	10	2	1	3	4	24	4	14
		10	9	1				39	7	13	9	3	1			19	7	3	1
	16	9	3	7	2	17		24	7	2	6	9	7		3	7	12	9	1
26	9	1	5	3	8	4	5	4	1	12	8	4	11	2	1	8			
17	7	2	8	7	12	9	3	6	12	8	4	7	6	1	7	5	1	4	6
		6	4	2	13	16	1	3	9		7	4	2	1	4	5	2	3	4
		13	4	9	6	1	5	12	7	5	3	2	1	20	2	1	8	9	
		8	1	7	8	2	6	16	9	7	7	4	3	13	1	3	9		