

EXCESS, FULFIL, GARAGE, HAWAII, INSIST, JOJOBA, KOOKIE, LONDON, MEMNON, NEATEN, ONIONS, PIPING, QUOQUE (Latin: also), RUMOUR, SORROW, TESTER, UNEVEN, VELVET, WIRIER, XERXES, YOYLLE and ZIGZAG.

Table 1

Possible sets of TRIANGLES from groups of 3 to 33 letters

Triangle sizes: A = 2:1 B = 3:2:1 C = 4:3:2:1 D = 5:4:3:2:1 E = 6:5:4:3:2:1 F = 7:6:5:4:3:2:1

	A	B	C	D	E		A	B	C	D	E	F		A	B	C	D	E	F	
*3	1						24	1	1		1			30	3	1		1		
*6	2						*24	2	3					30	4	3				
*6		1					*24	3			1			30	5			1		
*9	1	1					*24	4	2					30	6	2				
*9	3						*24	6	1					30	8	1				
*10			1				24	8						30	10					
*12	2	1					*24		4					30		5				
*12	4						*25	1	2	1				30			3			
*12		2					*25	3	1	1				30				2		
*13	1		1				*25	5		1				31	1					1
*15	1	2					25			1	1			31	1	3	1			
*15	3	1					*26	2		2				*31	2		1	1		
*15	5						26		1	2				31	3	2	1			
15				1			*27	1	4					31	5	1	1			
*16	2		1				27	2				1		31	7		1			
*16		1	1				27	2	1		1			31		1	1	1		
18	1			1			*27	3	3					31			1		1	
*18	2	2					27	4			1			32	2	1	2			
*18	4	1					27	5	2					32	4		2			
*18	6						27	7	1					32		2	2			
*18		3					27	9						33	1			2		
*19	1	1	1				27		1			1		33	1		3			
*19	3		1				27		2		1			33	1	5				
*20			2				28	1		1	1			33	2	1			1	
*21	1	3					*28	2	2	1				*33	2	2		1		
*21	2			1			*28	4	1	1				33	3	4				
*21	3	2					28	6		1				33	4				1	
*21	5	1					28		3	1				33	4	1		1		
*21	7						28					1		33	5	3				
*21		1		1			*29	1	1	2				33	6			1		
21					1		*29	3		2				33	7	2				
*22	2	1	1				30	1	1			1		33	9	1				
*22	4		1				30	1	2		1			33	11					
*22		2	1				30	2	4					33		2			1	
*23	1		2				30	3				1		33		3		1		
24	1				1															

* indicates a set of triangles for which a word was found

We continue with words which make sets of two triangles, the triangles progressively increasing in size. Then we move on to words which make sets of three triangles and so on. The longest word for which I made a set of triangles had 33 letters. Of words with 33 letters and fewer, those with 2, 4, 5, 7, 8, 11, 14 and 17 letters cannot make sets of triangles. In theory, it is possible to make sets of triangles from all the other lengths of word up to, and including, length 33 (Table 1). In practice,

however, it depends on the relative number of each of the different letters in the word. In some cases no word was found which would satisfy a particular set of triangles. For example, I am not aware of any 27-letter word which makes nine 2:1 triangles. In other cases only a single word was found. Where several examples were found, two or more words are listed, together with the occasional phrase. The longer words are predominantly medical and chemical terms. The number of letters in a word is shown in brackets; hyphens are not shown.

----- TWO TRIANGLES -----

BABOON (6)

A + N
B B O O

Also: see list on previous pages.

WINNOWING (9)

O + I I G
W W N N N

Also: BEGINNING, INNOCENCE, TINNINESS.
and the Agamemnon word SUSUHUNAN.

ONESIDEDNESS (12)

I O
N N + D D
S S S E E E

Also: CONDESCENDED, STATISTICIAN.

INCONVENIENCE (13)

V
O + I I
C C N N N N

Also: NONSYNONYMOUS, CONCRESCENCES.

CEREBROSCLEROSES (16)

B
L O O
C C + R R R
S S S E E E

Also: PROAPPROPRIATION.

NITROSOSUBSTITUTIONS (20)

B R
N N U U
I I I + O O O
S S S S T T T T

----- THREE TRIANGLES -----

AGAMEMNON (9)

G + E + O
A A M M N N

Also: CHARACTER, DEWLAPPED.

SENSATIONIST (12)

E
A + O + I I
T T N N S S S

Also: ANTICIPATING, DISTINCTNESS.

ANTITETANICALLY (15)

E Y
C + I I + N N
L L T T T A A A

Also: FANTASTICATIONS.

CONTRADISTINCTIONS (18)

A D R
C C + O O + S S
T T T N N N I I I

Also: ISOTRANSPLANTATION, RADIOCARDIOGRAPHIC and MARGARET THATCHER P.M.

PREPOSTEROUSNESS (16)

T
U + N + R R
P P O O S S E S E

Also: IRRESPONSIVENESS, UNASSAILABLENESS and INTELLIGENCE TEST.

DIASTEREOISOMERISMS (19)

D + M M + S E E E
 R R I I I S S S - S
 A O O
 T

Also: STEREOORIENTOGRAM.

ELECTROCONTRACTILITIES (22)

A N S L L
 R R + O O + I I I I
 E E E C C C T T T T
 T

Also: URETEROSIGMOIDOSTOMIES.

The phrase **INTERNATIONAL ATOMIC TIME (23)**

C R
 O O E E
 L + A A A + N N N
 M M T T T T I I I I
 ----- FOUR TRIANGLES -----

CARRIAGELESS (12)

G + L + C + I
 A A E E R R S S

Also: PRECIPITATED, FORAMINIFERA, SAN FRANCISCO and THE END IS NIGH.

INTUSSUSCEPTION (15)

P + O + E + U C
 I I N N T T S S U S

CHARACTERISTICALLY (18)

S + Y + I I H E
 R R L L C C C A T T A

Also: ACROMIOCLAVICULARE, CARCINOMATOTICALLY.

MECHANICOINTELLECTUAL (21)

U + M O H
 T T C I I + E N N + L A A L
 C C C

PARASYMPATHETICOMIMETICS (24)

O H Y R
 P P + C C + E E + S S
 T T T M M M A A A I I I

Also: the combined seasons SPRING SUMMER AUTUMN WINTER.

AUTOSTANDARDIZATION (19)

U + S + Z + R O O
 D D I I N N A T T T A A A
 T

Also: EXTRAINTRACRANIALY.

CHOLECYSTOILEOSTOMIZES (22)

Y + Z + H M L L
 C C T T + E I I + S S S
 O O O O

Also: RADIOCARDIOGRAPHICALLY, ESTABLISHMENTARIANISMS, ACROKERATOELASTOIDOSIS.

HETEROTRANSPLANTABILITIES (25)

H S S + L A A P L A A + N E E O N E E + T I T R I T I B
 S S A A A E E E T T T T T

Also: NASOPHARYNGOLARYNGOSCOPES.

ARTHROPNEUMOROENTGENOGRAMS (26)

H G G + U T T + O N O M N M N O O + E R R A A P A A
 G G T T O O O O R R R R R

COUNTERIMMUNOELECTROPHORETICS (29)

S M M + N R R L R R + C E E U C E E U C E E + T O O I O O H I I
 M M R R R E E E E E O O O O

COUNTERIMMUNOELECTROPHORETICALLY (32) is another form of the same word:

Y M M L + A N R N R + U C E C E U C E E + T O O I O O H I I
 L L L R R R E E E E E O O O O

----- FIVE TRIANGLES -----

NONDOMESTICATED (15)

S O O + M E E + A T T + I N N + C D D

Also: DEHYDROGENIZING, LIGHTHANDEDNESS, DEMAGNETIZATION and GOLDEN HAND SHAKE.

ESTABLISHMENTARIAN (18)

B T T + L N N + H E E + M S S + I A A R I A A

Also: BUREAUCRATISATIONS, HYPERPARASITICALLY, and APPLIED MATHEMATICS and WEDDING ANNIVERSARY.

INTRAPROTOPLASMICALLY (21)

C R R + Y T T + M O O + I L L N I L L + P A A S P A A

Also: GONARTHROMENINGITIDES, BENZALPHENYLHYDRAZONE.

THYROPARATHYROIDECTOMIES (24)

S H H + M Y Y + A R R C A R R + I T T P I T T + E O O D E O O

Also: AEROHYDROTHERAPEUTICALLY.

TRIFLUOROMETHYLDEOXYURIDINE (27)

X D D + U E E H U E E + T I I M T I I + O L O F L O L + Y R R N Y R R

NAPHTHYLPARAROSANILINE (22)

S H H + Y L L + E R R + P O P + N A A T I N I N A A A

ELECTROCARDIOPHONOGRAPHIC (25)

D + L + G + T I I + R E E
 A A P P H H C C C O O - O O

Also: SPHENOSALPINGOSTAPHYLINUS.

RADIOELECTROPHYSIOLOGRAPHIES (28)

D + Y + A A + H H + I I I
 P P S S R R R E E E O O O O

Also: HYPERBETALIPOPROTEINEMICALLY and DIRECTOR OF PUBLIC PROSECUTIONS.

ENCEPHALOMYELONEUROPATHICALLY (29)

U + M + R + A A A + O O O
 P P Y Y C C E E E E L L L L

Also: its transposal NEUROENCEPHALOMYELOPATHICALLY.

ARTHROPNEUMOROENTGENOGRAPHICALLY (32)

I + U + G G + N N N + A H A
 T T P P E E E O O O O R R R R

----- SIX TRIANGLES -----

GLYCEROPHOSPHATASE (18)

G + Y + L + C + R + T
 E E O O P P H H S S A A

Also: BRACHYTHERAPEUTICS and AGENTS PROVOCATEURS.

ONCE IN ROYAL DAVID'S CITY (21)

T + S + V + R N + L Y + C C
 A A O O D D N N Y Y I I I

Also: LAPAROSALPINGECTOMIES, CARDIOTHERAPEUTICALLY.

CORYNEBACTERIOPHAGICALLY (24)

N + H + P + G + L L + R R
 Y Y E E I I O O C C C A A A

The phrase **WOMENS ROYAL VOLUNTARY SERVICE (27)**, known as the WRVS:

T + I + M + N N + S S + A A
 V V L L Y Y O O O E E E R R R

The phrase **DISTINGUISHED CONDUCT MEDAL (25)**

O + L + H + M + G + I I I
 N N U U E E S S T T D D D D

URETHROCYSTOMETROGRAPHICALLY (28)

I + P + U + S + E E + O O O
 L L C C H H Y Y T T T R R R R

Also: RADIOELECTROPHYSIOLOGRAPHING and FEDERAL BUREAU OF INVESTIGATION.

----- SEVEN TRIANGLES -----

SCHIZOPHRENOGENICALLY (21)

Z + Y + A + P + S + G + R
 O O E E L L C C H H I I N N

Also: LAPARONEPHRECTOMIZING and PUBLIC HEALTH INSPECTOR.

VENTRICULOSUBARACHNOIDAL (24)

D + H + V + S + E + B + N T
 R R I I C C U U L L O O A A A

----- LARGE TRIANGLES -----

The dictionary-sanctioned word which makes a triangle with the letter ratio 5:4:3:2:1 remains as elusive as ever; the only representatives are cleverly coined words such as Sir Jeremy Morse's **linenlessnesses**. However, a few words make sets of triangles which include one of size 5:4:3:2:1...

URETEROURETEROSTOMIES (21) makes a rather painful statement:

I
 S S
 O O O M
 R R R R + U U
 E E E E E T T T

Also: SIGMOIDOSIGMOIDOSTOMY, INSTITUTIONALISATIONS.

TRANSURETEROURETERALS (21)

O + N + E T A A L
 S S U U R R R R R R R

Also: CYCLOELECTROLYTICALLY.

CHILOGNATHOGLOSSOSCHISES (24)

T + A + N + O H C E
 I I L L G G S S S S S S C C
 H H H H

HYPERSTEREOROENTGENOGRAPHIC (27)

S + I + A + Y + R O H C
 P P T T N N G G E E E E R R R R H H
 O O O O O O O O O O O O

As a break from the routine of working at a desk, I sometimes retire to a more comfortable chair to analyse lists of words resting on my lap. Appropriately, it was during one such session that I found **TETRAETHYLMONOTHIONOPYROPHOSPHATE**. A word with 33 letters, it includes a giant 6:5:4:3:2:1 triangle. And this concludes my triangular offering as I do not have any...

S
 R R
 E E E
 H H H H
 T T T T T T + N I + M + A L
 O O O O O O O N N Y Y P P A A P