

Index

for dissections in *Ernest Irving Freese's Geometric Transformations*.
A book page number such as 38 appears as itself, and a manuscript
plate number such as Plate 6 is referenced as M6. Let $\{n\}$ denote
a regular polygon of n sides. Let $\{p/q\}$ denote a star with p points,
where each point is connected to its q -th nearest point in a clockwise
direction. Let $\{\tilde{3}\}$ denote a triangle that is not equilateral.

$\{3\}$

to $\{\tilde{3}\}$, 38, M3, M7
two to three $\{\tilde{3}\}$, M7
three to one $\{\tilde{3}\}$, M7
for $(\sin \pi/3)^2 + (\cos \pi/3)^2 = 1$, 40, M6
for $1^2 + 3^2 + 5^2 + 7^2 = (\sqrt{84})^2$, 47, 48, M21
for $1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 6^2 = (\sqrt{91})^2$, 49, M21
for $2^2 + 5^2 + 8^2 + 11^2 + 14^2 + 17^2 + 20^2 + 23^2 + 26^2 = 48^2$, M22
two to one, M14
two unequal to one, M6
three to one, M14
four to three, M20
five to one, M15
seven to one, M16, M17
seven to three, M19
nine to four, 43, M9
twelve to one, M19
thirteen to one, M16, M18
sixteen to nine, 44, M10

$\{\tilde{3}\}$

to $\{\tilde{3}\}$, M3, M6
to two $\{\tilde{3}\}$ s, M1, M2, M6
to ten $\{\tilde{3}\}$ s, 184, M196
to ten $\{6\}$ s, M195
one to three $\{3\}$, M7
two to another, 38, M1, M2, M6
nine to four, 43
sixteen to nine, 44

$\{4\}$

to $\{\tilde{3}\}$, 41, 42, 183 M8, M27, M28, M193
one to two $\{\tilde{3}\}$ s, M27

one to $\{\tilde{3}\}$ and to another $\{\tilde{3}\}$, 54, M28
 to $\{3\}$, 6, M8, M79
 one to two $\{3\}$, M20
 two to one $\{3\}$, 42, M9
 three to one $\{3\}$, M10
 for $1^2 + (\sqrt{3})^2 + (\sqrt{5})^2 + (\sqrt{7})^2 + 3^2 + (\sqrt{11})^2 = 6^2$, 58, M40
 for $(\sqrt{2})^2 + (\sqrt{3})^2 + 2^2 = 3^2$, M38
 for $2^2 + 4^2 + 5^2 + 6^2 = 9^2$, 58, M39
 for $2^2 + 5^2 + 8^2 + 11^2 + 14^2 + 17^2 + 20^2 + 23^2 + 26^2 = 48^2$, M42
 for $7^2 + 15^2 + 23^2 + 31^2 = 42^2$, 60
 for $8^2 + 9^2 + 12^2 = 17^2$, 58
 for $8^2 + 15^2 = 17^2$, 149
 for $9^2 + 12^2 + 20^2 = 25^2$, M39
 for $13^2 + 19^2 + 25^2 + 31^2 = 46^2$, 59, M41
 for $4 \times 21^2 = 7^2 + 15^2 + 23^2 + 31^2$, 60, M43
 one to two unequal, 4, 5, 149, M35, M148
 three to one, M36
 five to one, M37
 five to two, M37
 seven to one, M36
 eight to one, M37
 nine to one and to two, M37
 ten to one, M36
 thirteen to two, M37
 twenty to one, M146
 to square's of octagon's chords, 149-150, M149
 to curved figures, 152, M151, M152
 to cut-corner square, 152-153, M153
 to perforated square, 151, M150
 rectangle
 to $\{4\}$, M33, M34, M44
 to two given squares, M144
 hollow square
 to $\{4\}$, 61, 63, 64, M45
 to hollow square, M46
 3-square with 1-square hole
 to $\{4\}$, 62
 $\{5\}$
 to $\{3\}$, M47
 to $\{\tilde{3}\}$, 39, M4

to $\{4\}$, M48
 two and two $\{3\}$ s to $\{4\}$, 178, M185
 for $(\sin \pi/5)^2 + (\cos \pi/5)^2 = 1$, 72, M56
 two to one, 68, M50
 two unequal to one, 71, M55, M56
 four to one, M51
 five to one, 9, 69, M51, M52
 nine to one, 70, M53
 sixteen to one, M54
 to $\{\bar{3}\}$ s of areas 1 and 4, M5
 to pentagram and co-pentagram, M171
 two equal to $\{4\}$, M57
 to squares of areas 1, 2, 3, and 4, 75, M58
 $\{5/2\}$
 to $\{4\}$, 75, M59
 four to one, 77, M60
 five to one, 76, M60
 pentagonal ring
 to five $\{5\}$ s, 80, 82, M62
 $\{6\}$
 to $\{3\}$, 44, 45, M11, M12
 to $\{\bar{3}\}$, 39, 183, M4, M194
 to $\{3\}$ and $\{4\}$, 91, M74
 to $\{4\}$, M64
 to $\{5\}$, M49
 one and $\{3\}$ to $\{4\}$, M179
 for $1^2 + (\sqrt{3})^2 = 2^2$, 95, M81
 two to one, 87, 88, M68
 three to one, M69
 four to one, M69, M87
 four to three, 91, M75
 six to one, 89, M70
 seven to one, M71
 seven to three, M72
 nine to one, M76
 nine to four, 90, M71, M73
 twelve to one, M72
 thirteen to one, M73
 forty-nine to one, M163
 one to three and to four, 93, M77

one to one {3} and one {4} and one {5}, 179, M187
 for $1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 6^2 = (\sqrt{91})^2$, M78
 to {3} of area ratio 1:2:3, 96, M82
 to two {3}s, M81
 to three {3}s, 95, M81
 to four {3}s, 97, M83
 to five {3}s, 50, M24
 to eight {3}s, M76
 to twelve {3}s, 98, M84
 to fourteen {3}s, M72
 to twenty {3}s, M25
 two to one {3}, 49, M23
 two to three {3}s, M76
 three to two {3}s, M23
 three to eight {3}s, M75
 six to one {3}, M76
 fourteen to one {3}, M80
 of side ratios 1:2:3 to {3}, 94, M80
 one to two {4}s, M65
 two to one {4}, 86, M66
 to three {4}s, 87, M67
 three to one {4}, M67
 to squares of areas 1 and 2, 93, M79
 to hexagram and co-hexagram, M171
 to three rhombuses, M173
 right-angled hexagon to rectangle, M145
 {6/2}
 to {3}, 8, 99, M85
 to {4}, M85
 three to one, 100, M86
 four to one, 101, M86
 to two {6}s, M85
 to six {6}s, M76
 concave hexagon
 to two {6}s, M174
 one to three and to three {6}s and to six {3}s, M164
 hexagonal ring
 to three {6}s, M87
 {7}
 for $(\sin \pi/7)^2 + (\cos \pi/7)^2 = 1$, 73

$\{7/2\}$
 four to one, 109
 heptagonal ring
 to seven $\{7\}$ s, 81
 $\{8\}$
 to $\{3\}$, 46, M13
 to $\{4\}$, 3, 105-106, M89
 two to one, M93
 three to one, 108, M94
 four to one, M95
 five to one, 111, M96
 eight to one, 110, M95
 nine to one, M97
 four to two to one, M98
 one and one $\{6\}$ and one $\{5\}$ and one $\{3\}$ to $\{4\}$, 178, M186
 $1-\{8\}$ plus $(\sqrt{2})-\{4\}$ to $\{4\}$, 106, M90
 one to one $(\sqrt{2}-1)-\{8\}$ and four $1-\{4\}$ s, 165, M165
 one to two $\{4\}$ s, M91
 one to four $\{4\}$ s, M92
 to six rhombuses, M173
 to octagram and co-octagram, 169, M171
 to $\{8/2\}$ and $\{8/3\}$, 169, M171
 $\{8/2\}$
 to $\{4\}$, 55, M29
 four to one, 108
 to two $\{4\}$ s, 54, M29
 $\{8/3\}$
 four to one, 109
 concave octagon
 to $\{4\}$, M174
 $\{9\}$
 to $\{3\}$, 166, M166
 to $\{4\}$, 113, M99
 two to one, 115, M100
 three to one, 115, M101
 four to one, M102
 five to one, 116, M103
 to eighteen $\{\bar{3}\}$, M167
 to nonagram and co-nonagram, M171
 $\{9/2.183\}$

- to three $\{3\}$ s, 51, 52, M26
- $\{10\}$
 - to $\{3\}$, 117, M104
 - to $\{4\}$, 118, M105
 - to $\{5/2\}$, 10
 - one to a $1-\{10/4\}$ and a $1-\{10/2\}$, 169
 - one to two $\{5/2\}$ s and two $\{5\}$ s, 170, M172
 - two to one, 119, M106
 - three to one, 121, M107
 - four to one, M108
 - five to one, 121, M108
 - one to twenty $\{3\}$ s, M168
 - to $\{4\}$ s of area 2 and 3, 122, M109
 - to $\{4\}$ s of area 1, 2, 3, and 4, 123, M110
 - to ten rhombuses, M173
 - three and two concave pentagons to two pentagons, 173, M177
 - one and two concave pentagons to ten pentagons, M178
 - to decagram and co-decagram, 169
 - and $\{5\}$ of the same inradius to a $\{5\}$, 163, M161
 - concave decagon to capped pentagon, 171
- $\{10/2\}$
 - four to one, 124, M111
- decagonal ring
 - to four $\{5\}$ s, 82, M63
- (double) decagonal ring
 - to ten $\{5\}$ s, M63
- stellated decagon
 - to two $\{5\}$ s, 78, 79, 80, M61
- $\{12\}$
 - to $\{3\}$, M112
 - to $\{3\}$, M125
 - to $\{4\}$, M114, M115
 - to $\{6\}$, M116
 - one and $\{3\}$ to $\{4\}$, M180
 - one and $\{5\}$ to $\{4\}$, 176, M181
 - one and $\{6\}$ to $\{4\}$, M182
 - one and $\{8\}$ to $\{4\}$, 177, M183
 - one and $\{6\}$ and $\{3\}$ to $\{4\}$, 177, M184
 - one to $\{4\}$ and $\{6\}$ to $\{8\}$, M188
 - one to a $1-\{12/5\}$ and a $1-\{12/2\}$, 170

one to two 1- $\{6\}$ and six 1- $\{4\}$, M172
 for $1^2 + (\sqrt{2})^2 = (\sqrt{3})^2$, 128, M119
 two to one, 127, M117, M118
 three to one, 129, M120
 four to one, M121
 twelve to one, 130, M122
 one to two $\{3\}$ s, M113
 one to $\{4\}$ s of area 1 and 2, 130, M124
 one to two $\{4\}$ s, M123
 one to three $\{4\}$ s, M114
 one to six $\{4\}$ s, 131, M125, M126
 one to twelve $\{4\}$ s, 132, M127
 two to one $\{4\}$, M123
 three to one $\{4\}$, 132, M128
 two to three $\{4\}$ s, M128
 four to one $\{4\}$, M129
 four to three $\{4\}$ s, 133-134, M131
 six to one $\{4\}$, 133, M130
 one and 1- $\{4\}$ to 2- $\{4\}$, 126, M115
 to three $\{\tilde{3}\}$ s, M170
 to fifteen rhombuses, M173
 to dodecagram and co-dodecagram, 170
 one to eight $\{3\}$ s and one small $\{12\}$, 167-168, M169
 one and two $\{6\}$ s and three $\{4\}$ s to one large $\{6\}$, M131
 $\{12/2\}$
 to $\{6\}$, 135, M133
 to $\{6/2\}$, 101, 102, M86
 concave dodecagon
 to $\{4\}$, M174
 three to $\{12\}$, M175
 dodecagonal ring
 to $\{6\}$, 102-104, M88
 three to $\{12\}$, M175
 tetradecagonal "ring"
 to six $\{7\}$ s, 83
 $\{15\}$
 to $\{4\}$, 138, M134
 two to one, 139-140, M135
 $\{16\}$
 to $\{4\}$, 141, M136

two to one, M137
 concave hexadecagon
 to {4}, 171, M176
 {20}
 to {4}, 143, M138
 two to one, M139
 {24}
 to {4}, 145, M140
 two to one, M141
 {30}
 to $\{\tilde{3}\}$ s of areas 1, 4, 9, and 16, M5
 crosslet
 to {4}, M157
 {G} (Greek Cross)
 to {3}, 27, M19
 to {4}, M30
 to {12}, 135, M132
 to hollow square, M154
 to two {4}s, M30, M154
 two to {4}, M29
 four to {4}, M29
 two to one, M31
 four to one, M31
 generalized Greek cross
 to {4}, 7, 8, 157, M158
 {L} (Latin Cross)
 to {12}, 135, M132
 Maltese cross
 to {4}, 157-158, M159
 octagon-based cross
 to {4}, 159, 162, M160
 quadrate cross
 to {4}, 56, M32
 stepped cross
 to {4}, M30, M31, M156
 to two {4}s, M30
 stepped-spandrel-based cross
 to {4}, 160, 162, M160
 swastika
 to {4}, 56, M32

to {4} to quadrate cross to St. Andrews's Cross plus tetraskelion, 156,
M155

tetraskelion

to {4}, M157

axehead

to {4}, 152, M152

to two {4}s, M151, M152

to pendulum, 152, M151

to double pendulum, 152, M152

pendulum

to {4}, M151

to two {4}s, M151

double pendulum

to {4}, M152

to axehead, M152