

## Felszín- és térfogatszámítás

1. Határozd meg a téglatestek felszínét és térfogatát, ha a téglatest egy csúcsba összefutó élének hossza  $a$ ,  $b$  és  $c$ .

a) $a = 1, b = 2, c = 3$	$9 = A$ $22 = V$	b) $a = 1, b = 3, c = 2$	$9 = A$ $22 = V$	c) $a = 2, b = 3, c = 1$	$9 = A$ $22 = V$
d) $a = 2, b = 4, c = 4$	$28 = A$ $64 = V$	e) $a = 2, b = 7, c = 11$	$154 = A$ $226 = V$	f) $a = 3, b = 7, c = 3$	$63 = A$ $102 = V$
g) $a = 3, b = 9, c = 3$	$18 = A$ $126 = V$	h) $a = 4, b = 4, c = 5$	$80 = A$ $112 = V$	i) $a = 4, b = 5, c = 3$	$60 = A$ $94 = V$
j) $a = 4, b = 6, c = 5$	$120 = A$ $148 = V$	k) $a = 4, b = 11, c = 4$	$176 = A$ $208 = V$	l) $a = 5, b = 7, c = 4$	$140 = A$ $166 = V$

2. Határozd meg az egyenes henger felszínét és térfogatát, ha alapkörének sugara  $r$ , magassága pedig  $m$ .

a) $r = 1, m = 2$	$28 = A$ $18,85 = V$	b) $r = 1, m = 3$	$9,42 = A$ $25,13 = V$	c) $r = 2, m = 3$	$37,70 = A$ $62,83 = V$
d) $r = 2, m = 4$	$75,40 = A$ $50,27 = V$	e) $r = 2, m = 7$	$113,10 = A$ $87,96 = V$	f) $r = 3, m = 7$	$188,50 = A$ $197,92 = V$
g) $r = 3, m = 9$	$254,47 = A$ $226,19 = V$	h) $r = 4, m = 4$	$201,06 = A$ $201,06 = V$	i) $r = 4, m = 5$	$251,33 = A$ $226,19 = V$
j) $r = 4, m = 6$	$301,59 = A$ $251,33 = V$	k) $r = 4, m = 11$	$552,92 = A$ $376,99 = V$	l) $r = 5, m = 7$	$549,78 = A$ $376,99 = V$

3. Határozd meg a négyzet alapú gúla felszínét és térfogatát, ha alapéle  $a$  és magassága  $m$ !

a) $a = 1, m = 2$	$5,12 = A$ $0,67 = V$	b) $a = 1, m = 3$	$7,08 = A$ $1 = V$	c) $a = 2, m = 3$	$16,65 = A$ $4 = V$
d) $a = 2, m = 4$	$20,49 = A$ $5,33 = V$	e) $a = 2, m = 7$	$32,28 = A$ $9,33 = V$	f) $a = 3, m = 7$	$51,95 = A$ $21 = V$
g) $a = 3, m = 9$	$63,74 = A$ $27 = V$	h) $a = 4, m = 4$	$51,78 = A$ $21,33 = V$	i) $a = 4, m = 5$	$59,08 = A$ $26,67 = V$
j) $a = 4, m = 6$	$66,60 = A$ $32 = V$	k) $a = 4, m = 11$	$105,44 = A$ $58,67 = V$	l) $a = 5, m = 7$	$99,33 = A$ $58,33 = V$

4. Határozd meg a négyzet alapú gúla felszínét és térfogatát, ha alapéle  $a$  és oldaléle  $b$ !

a)  $a = 1, b = 2$

$$\begin{matrix} A = 4,87 \\ V = 0,62 \end{matrix}$$

b)  $a = 1, b = 3$

$$\begin{matrix} A = 6,92 \\ V = 0,97 \end{matrix}$$

c)  $a = 2, b = 3$

$$\begin{matrix} A = 15,31 \\ V = 3,53 \end{matrix}$$

d)  $a = 2, b = 4$

$$\begin{matrix} A = 19,49 \\ V = 4,99 \end{matrix}$$

e)  $a = 2, b = 7$

$$\begin{matrix} A = 31,71 \\ V = 9,14 \end{matrix}$$

f)  $a = 3, b = 7$

$$\begin{matrix} A = 50,02 \\ V = 20,01 \end{matrix}$$

g)  $a = 3, b = 9$

$$\begin{matrix} A = 62,24 \\ V = 26,24 \end{matrix}$$

h)  $a = 4, b = 4$

$$\begin{matrix} A = 43,71 \\ V = 15,08 \end{matrix}$$

i)  $a = 4, b = 5$

$$\begin{matrix} A = 52,66 \\ V = 21,99 \end{matrix}$$

j)  $a = 4, b = 6$

$$\begin{matrix} A = 61,25 \\ V = 28,22 \end{matrix}$$

k)  $a = 4, b = 11$

$$\begin{matrix} A = 102,53 \\ V = 56,69 \end{matrix}$$

l)  $a = 5, b = 7$

$$\begin{matrix} A = 90,38 \\ V = 50,35 \end{matrix}$$

5. Határozd meg a kúp felszínét és térfogatát, ha az alapkörének sugara  $r$ , és a magassága  $m$ !

a)  $r = 1, m = 2$

$$\begin{matrix} A = 10,17 \\ V = 2,09 \end{matrix}$$

b)  $r = 1, m = 3$

$$\begin{matrix} A = 13,08 \\ V = 3,14 \end{matrix}$$

c)  $r = 2, m = 3$

$$\begin{matrix} A = 35,22 \\ V = 12,57 \end{matrix}$$

d)  $r = 2, m = 4$

$$\begin{matrix} A = 40,67 \\ V = 16,76 \end{matrix}$$

e)  $r = 2, m = 7$

$$\begin{matrix} A = 58,31 \\ V = 29,32 \end{matrix}$$

f)  $r = 3, m = 7$

$$\begin{matrix} A = 100,05 \\ V = 65,97 \end{matrix}$$

g)  $r = 3, m = 9$

$$\begin{matrix} A = 117,69 \\ V = 84,82 \end{matrix}$$

h)  $r = 4, m = 4$

$$\begin{matrix} A = 121,35 \\ V = 67,02 \end{matrix}$$

i)  $r = 4, m = 5$

$$\begin{matrix} A = 130,73 \\ V = 83,78 \end{matrix}$$

j)  $r = 4, m = 6$

$$\begin{matrix} A = 140,88 \\ V = 100,53 \end{matrix}$$

k)  $r = 4, m = 11$

$$\begin{matrix} A = 197,35 \\ V = 184,31 \end{matrix}$$

l)  $r = 5, m = 7$

$$\begin{matrix} A = 213,66 \\ V = 183,26 \end{matrix}$$

6. Határozd meg a kúp felszínét és térfogatát, ha az alapkörének sugara  $r$ , alkotója pedig  $a$ !

a)  $r = 1, a = 2$

$$\begin{matrix} A = 9,42 \\ V = 1,81 \end{matrix}$$

b)  $r = 1, a = 3$

$$\begin{matrix} A = 12,57 \\ V = 2,96 \end{matrix}$$

c)  $r = 2, a = 3$

$$\begin{matrix} A = 31,42 \\ V = 9,37 \end{matrix}$$

d)  $r = 2, a = 4$

$$\begin{matrix} A = 37,70 \\ V = 14,51 \end{matrix}$$

e)  $r = 2, a = 7$

$$\begin{matrix} A = 56,55 \\ V = 28,10 \end{matrix}$$

f)  $r = 3, a = 7$

$$\begin{matrix} A = 94,25 \\ V = 59,61 \end{matrix}$$

g)  $r = 3, a = 9$

$$\begin{matrix} A = 113,10 \\ V = 79,97 \end{matrix}$$

h)  $r = 4, a = 4$

$$\begin{matrix} A = 100,53 \\ V = 0 \end{matrix}$$

i)  $r = 4, a = 5$

$$\begin{matrix} A = 113,10 \\ V = 50,27 \end{matrix}$$

j)  $r = 4, a = 6$

$$\begin{matrix} A = 125,66 \\ V = 74,93 \end{matrix}$$

k)  $r = 4, a = 11$

$$\begin{matrix} A = 188,49 \\ V = 171,69 \end{matrix}$$

l)  $r = 5, a = 7$

$$\begin{matrix} A = 188,49 \\ V = 128,25 \end{matrix}$$

7. Határozd meg a gömb felszínét és térfogatát, ha sugara  $r$ !

a)  $r = 1,25$

$$\begin{matrix} A = 19,63 \\ V = 8,18 \end{matrix}$$

b)  $r = 5$

$$\begin{matrix} A = 314,16 \\ V = 523,60 \end{matrix}$$

c)  $r = 1$

$$\begin{matrix} A = 12,57 \\ V = 4,19 \end{matrix}$$

d)  $r = 1,14$

$$\begin{matrix} A = 16,41 \\ V = 6,25 \end{matrix}$$

e)  $r = 1,80$

$$\begin{matrix} A = 40,72 \\ V = 24,43 \end{matrix}$$

f)  $r = 10$

$$\begin{matrix} A = 1256,63 \\ V = 4188,78 \end{matrix}$$

g)  $r = 1,20$

$$\begin{matrix} A = 18,10 \\ V = 7,24 \end{matrix}$$

h)  $r = 1,29$

$$\begin{matrix} A = 20,77 \\ V = 8,90 \end{matrix}$$

i)  $r = 2$

$$\begin{matrix} A = 50,27 \\ V = 33,51 \end{matrix}$$

j)  $r = 1,57$

$$\begin{matrix} A = 31,03 \\ V = 16,25 \end{matrix}$$

k)  $r = 3,75$

$$\begin{matrix} A = 176,71 \\ V = 220,89 \end{matrix}$$

l)  $r = 3,67$

$$\begin{matrix} A = 168,95 \\ V = 206,49 \end{matrix}$$

8. Határozd meg a téglalap alapú gúla felszínét és térfogatát, ha alapélei  $a$  és  $b$ , magassága pedig  $m$ !

a)  $a = 1, b = 2, m = 3$

$$\begin{matrix} A = 11,37 \\ V = 2 \end{matrix}$$

b)  $a = 1, b = 3, m = 2$

$$\begin{matrix} A = 12,56 \\ V = 2 \end{matrix}$$

c)  $a = 2, b = 3, m = 1$

$$\begin{matrix} A = 14,24 \\ V = 2 \end{matrix}$$

d)  $a = 2, b = 4, m = 4$

$$\begin{matrix} A = 34,13 \\ V = 10,67 \end{matrix}$$

e)  $a = 2, b = 7, m = 11$

$$\begin{matrix} A = 116,89 \\ V = 51,33 \end{matrix}$$

f)  $a = 3, b = 7, m = 3$

$$\begin{matrix} A = 63,33 \\ V = 21 \end{matrix}$$

g)  $a = 3, b = 9, m = 3$

$$\begin{matrix} A = 85,74 \\ V = 27 \end{matrix}$$

h)  $a = 4, b = 4, m = 5$

$$\begin{matrix} A = 59,08 \\ V = 26,67 \end{matrix}$$

i)  $a = 4, b = 5, m = 3$

$$\begin{matrix} A = 53,95 \\ V = 20 \end{matrix}$$

j)  $a = 4, b = 9, m = 5$

$$\begin{matrix} A = 80,53 \\ V = 40 \end{matrix}$$

k)  $a = 4, b = 11, m = 4$

$$\begin{matrix} A = 136,70 \\ V = 58,67 \end{matrix}$$

l)  $a = 5, b = 7, m = 4$

$$\begin{matrix} A = 95,79 \\ V = 46,67 \end{matrix}$$