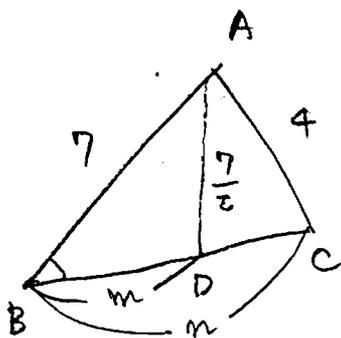


BD=m, BC=nとすると



$$\cos B = \frac{49 + m^2 - \frac{49}{4}}{14m} = \frac{49 + n^2 - 16}{14n}$$

$$\frac{\frac{3}{4} \times 49 + m^2}{m} = \frac{33 + n^2}{n}$$

$$\frac{3}{4} \times 49n + m^2n = 33m + n^2m$$

$$3 \times 49n + 4m^2n = 4 \times 33m + 4n^2m$$

$$3 \times 49n = 4(33m + n^2m - m^2n) \quad \text{--- ①}$$

∴  $m = 4k$  ( $k$  は自然数)

但し  $|7-4| < m < 7+4$  ∴  $3 < n < 11$

∴  $n = 4, 8$

$n = 4$  のとき ①は  $3 \times 49 \times 4 = 4(33m + 16m - 4m^2)$

$$147 = 49m - 4m^2$$

$$4m^2 - 49m + 147 = 0$$

$$m = \frac{49 \pm \sqrt{49^2 - 16 \times 147}}{8} \quad 2401 - 2352$$

$$= \frac{49 \pm \sqrt{49}}{8} = \frac{49 \pm 7}{8} = \frac{56}{8}, \frac{42}{8}$$

$$= 7, \frac{21}{4}$$

(不適)

$n = 8$  のとき ①は  $3 \times 49 \times 8 = 4(33m + 64m - 8m^2)$

$$3 \times 49 \times 2 = 97m - 8m^2$$

$$8m^2 - 97m + 294 = 0$$

$$(m-6)(8m-49) = 0$$

$$\boxed{m=6}, \frac{49}{8}$$

$$\frac{1}{8} \times \frac{6}{49}$$