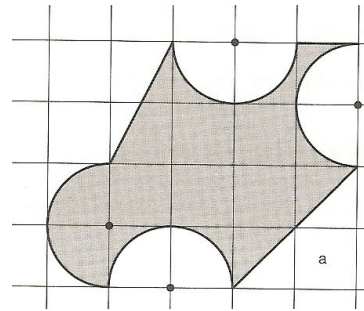


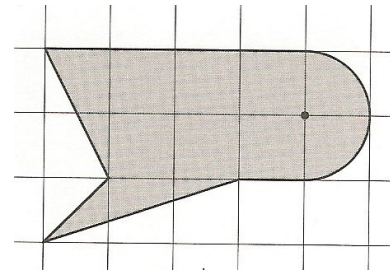
## 2.5 Diagnostische toets

### Opgave 1:

a.  $Opp = 4^2 - \frac{1}{2} \cdot 2 \cdot 1 - \frac{1}{2} \cdot 2 \cdot 2 - \pi \cdot 1^2 = 9,86 \text{ cm}^2 = 986 \text{ mm}^2$



b.  $Opp = 4 \cdot 3 - 1^2 - \frac{1}{2} \cdot 3 \cdot 1 - \frac{1}{2} \cdot 1 \cdot 1 - \frac{1}{2} \cdot 2 \cdot 1 + \frac{1}{2} \pi \cdot 1^2$   
 $= 9,57 \text{ cm}^2 = 957 \text{ mm}^2$



### Opgave 2:

a.  $\angle AMB = \frac{360}{8} = 45^\circ$

$$\angle ABM = \frac{180 - 45}{2} = 67,5^\circ$$

$$\angle ABC = 2 \cdot 67,5^\circ = 135^\circ$$

b.  $Omtrek \text{ cirkel} = 2 \cdot \pi \cdot r = 10\pi$

$$r = 5 \text{ dus } Am = 5$$

$$\cos 67,5^\circ = \frac{AN}{5}$$

$$AN = 5 \cos 67,5^\circ = 1,91$$

$$AB = 2 \cdot AN = 3,83$$

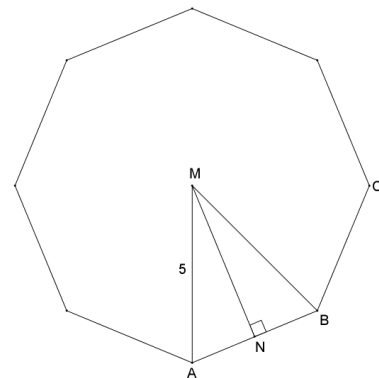
$$Omtrek(ABCDEFGH) = 8 \cdot AB = 30,6$$

$$\sin 67,5^\circ = \frac{MN}{5}$$

$$MN = 5 \sin 67,5^\circ = 4,62$$

$$Opp(\triangle ABM) = \frac{1}{2} \cdot AB \cdot MN = \frac{1}{2} \cdot 3,83 \cdot 4,62 = 8,84$$

$$Opp(ABCDEFGH) = 8 \cdot Opp(\triangle ABM) = 70,7$$



### Opgave 3:

$$MN = \sqrt{5^2 - 3^2} = \sqrt{16} = 4$$

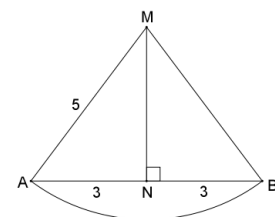
$$Opp(\triangle ABM) = \frac{1}{2} \cdot AB \cdot MN = \frac{1}{2} \cdot 6 \cdot 4 = 12$$

$$\sin \angle AMN = \frac{3}{5}$$

$$\angle AMN = 36,9^\circ \text{ dus } \angle AMB = 2 \cdot 36,9 = 73,7^\circ$$

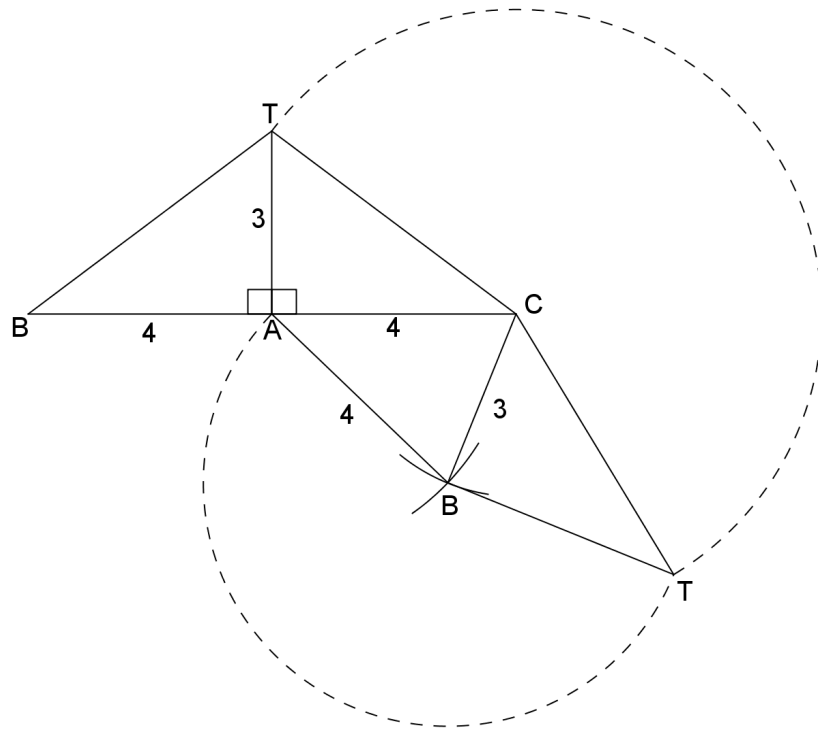
$$Opp(\text{cirkel sector}) = \frac{73,7}{360} \cdot \pi \cdot 5^2 = 16,09$$

$$Opp(\text{rode segment}) = 16,09 - 12 = 4,09$$

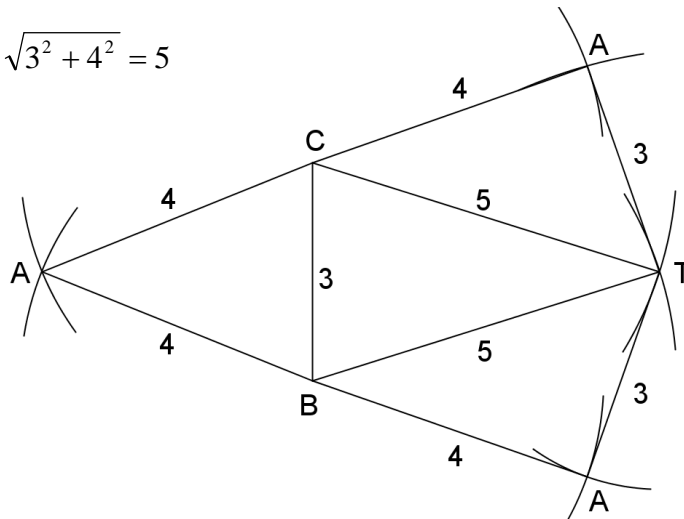


**Opgave 4:**

a.



b.  $BT = CT = \sqrt{3^2 + 4^2} = 5$

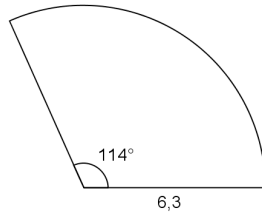


**Opgave 5:**

- a.  $AT = \sqrt{6^2 + 2^2} = \sqrt{40}$   
 omtrek grondcirkel  $= 2 \cdot \pi \cdot 2 = 4\pi$   
 omtrek cirkel  $= 2\pi\sqrt{40}$   
 dus je hebt het  $\frac{4\pi}{2\pi\sqrt{40}} = \frac{2}{\sqrt{40}}$  deel van de cirkel  
 middelpuntshoek  $= \frac{2}{\sqrt{40}} \cdot 360 = 113,8^\circ$



b.  $\sqrt{40} = 6,3$



**Opgave 6:**

a.  $R = \sqrt{10^2 + 5^2} = \sqrt{125}$

$Opp(\text{kegelmantel}) = \pi \cdot r \cdot R = \pi \cdot 5 \cdot \sqrt{125} = 175,62$

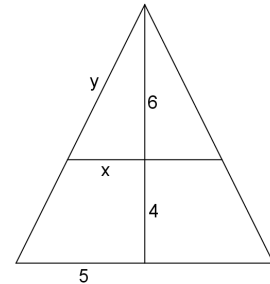
$Opp(\text{grondcirkel}) = \pi r^2 = \pi \cdot 5^2 = 78,54$

$Opp(\text{kegel}) = 175,62 + 78,54 = 254,2$

b.  $\frac{x}{5} = \frac{6}{10} = \frac{y}{\sqrt{125}}$

$x = 3 \quad y = \frac{6}{10} \sqrt{125}$

$Opp = \pi r R - \pi x y = \pi \cdot 5 \cdot \sqrt{125} - \pi \cdot 3 \cdot \frac{6}{10} \sqrt{125} = 112,4$



**Opgave 7:**

a.  $Opp(\text{cilinder}) = 2 \cdot \pi r^2 + 2\pi r h = 2 \cdot \pi \cdot 4^2 + 2 \cdot \pi \cdot 4 \cdot 8 = 32\pi + 64\pi = 96\pi$

$Opp(\text{bol}) = 4\pi r^2 = 4 \cdot \pi \cdot 4^2 = 64\pi$

$\frac{96\pi}{64\pi} \cdot 100\% = 150\%$  dus 50% meer

b.  $Opp(\text{cilinder}) = 2 \cdot \pi r^2 + 2\pi r h = 2 \cdot \pi \cdot r^2 + 2 \cdot \pi \cdot r \cdot 2r = 2\pi r^2 + 4\pi r^2 = 6\pi r^2$

$Opp(\text{bol}) = 4\pi r^2$

$\frac{6\pi r^2}{4\pi r^2} \cdot 100\% = 150\%$  dus 50% meer

dus het percentage hangt niet af van de straal van de bol

**Opgave 8:**

a.  $r = 5$  en  $h = 10$

$Inh = \pi r^2 h = \pi \cdot 5^2 \cdot 10 = 785 \text{ cm}^3$

b.  $r = 5$  dus  $Inh(\text{bol}) = \frac{4}{3} \pi r^3 = \frac{4}{3} \pi \cdot 5^3 = 524 \text{ cm}^3$

**Opgave 9:**

a.  $CM = \sqrt{6^2 - 3^2} = \sqrt{27}$

$Opp(\triangle ABC) = \frac{1}{2} \cdot AB \cdot CM = \frac{1}{2} \cdot 6 \cdot \sqrt{27} = 3\sqrt{27}$

$Inh = \frac{1}{3} \cdot G \cdot h = \frac{1}{3} \cdot 3\sqrt{27} \cdot 10 = 51,96$

b. de hoogte wordt  $0,6 \times$  zo groot, dus iedere zijde wordt  $0,6 \times$  zo groot, dus de inhoud wordt  $0,6^3 = 0,216 \times$  zo groot

$Inh = 51,96 - 0,216 \cdot 51,96 = 40,74$

c.  $\cos 30^\circ = \frac{3}{AN}$

$r = AN = 3 \cos 30^\circ = 3,464$

$Inh = \frac{1}{3} \pi r^2 h - \frac{1}{3} \cdot G \cdot h = \frac{1}{3} \pi \cdot 3,464^2 \cdot 10 - 51,96 = 73,70$

