**„Posavotamnavska srednja škola“**

**Vladimirci**

**I grafički rad iz mehanike**

**Učenik: Profesor:**

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**Analitičkim postupkom odrediti položaj težišta homogene ravanske figure,prikazane na slici.Osnovna podela mreže po kojoj je crtana figura ima vrednost 2cm.**

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**1.Trougao**

$$Xc1=3a-\frac{a}{3}=3∙2-\frac{2}{3}=6-0.66=5.34 cm$$

$$Yc1=2a+\frac{a}{3}=2∙2+\frac{2}{3}=4+0.66=4.66 cm$$

$$A1=\frac{a∙(2a)}{2}=\frac{2∙(2∙2)}{2}=\frac{2∙4}{2}=\frac{8}{2}=4 cm^{2}$$

**2.Trougao**

$$Xc2=3a+\frac{a}{3}=3∙2+\frac{2}{3}=6+0.66=6.66 cm$$

$$Yc2=\frac{a}{3}=\frac{2}{3}=0.66 cm$$

$$A2=\frac{a∙(2a)}{2}=\frac{2∙\left(2∙2\right)}{2}=\frac{2∙4}{2}=\frac{8}{2}=4 cm^{2}$$

**3.Krug**

$$Xc3=2a=2∙2=4 cm$$

$$Yc3=a=2 cm$$

$$A3=a^{2}π=2^{2}∙3.14=4∙3.14=12.56 cm^{2}$$

$$Xc=\frac{Xc1∙A1-Xc2∙A2-Xc3∙A3}{A1-A2-A3}=\frac{5.34∙4-6.66∙4-4∙15.56}{4-4-12.56}$$

$$=\frac{21.36-26.64-62.24}{-12.56}=\frac{-67.52}{-12.56}=5.38 cm$$

$$Yc=\frac{Yc1∙A1-Yc2∙A2-Yc3∙A3}{A1-A2-A3}=\frac{4.66∙4-0.66∙4-2∙12.56}{4-4-12.56}$$

$$=\frac{18.64-2.64-25.12}{-12.56}=\frac{-9.12}{-12.56}=0.73 cm$$