DOMAČA NALOGA

Ime in priimek: _____ Razred: _____

Datum: _____ Točke: _____ / 45 , _____ %

Kriterij:

Nezadostno (1)	Zadostno (2)	Dobro (3)	Prav dobro (4)	Odlično (5)
0 – 22	22,5 – 28,5	29 – 35,5	36 – 40	40,5 – 45

11

1. Izračunaj in poenostavi:

a) $6\,(a - 5b) = 6a - 30b$

b) $(x - 2)\,(x + 7) = x^2 + 7x - 2x - 14 = x^2 + 5x - 14$

c) $(-a - 5)\,(-4a + 10) = 4a^2 - 10a + 20a - 50 = 4a^2 + 10a - 50$

d) $(-b - 2a) - (2b + 3a) = -b - 2a - 2b - 3a = -5a - 3b$

e) $2xy^2\,(-1{,}5x^2) = -3x^3y^2$

f) $(c - 6)^2 = c^2 - 12c + 36$

g) $(3x + y)^2 = 9x^2 + 6xy + y^2$

h) $\left(-3x + \frac{1}{2}\right)^2 = 9x^2 - 3x + \frac{1}{4}$

i) $(x + 11)\,(x - 11) = x^2 - 121$

j) $(-4a - b)\,(-4a + b) = 16a^2 - b^2$

k) $(x + 1)\,(x^2 - x + 1) = x^3 - x^2 + x + x^2 - x + 1 = x^3 + 1$

4

2. Izpostavi največji skupni faktor:

a) $8a^2 + 2a = 2a(4a + 1)$

b) $18xy - 36x^2y - 27xy^2 = 9xy(2 - 4x - 3$

c) $a^3 + a^6 = a^3(1 + a^3)$

d) $16x^2 - 80x + 32 = 8(2x^2 - 10x + 4)$

6

3. Poenostavi izraza:

a) $(2x + 3)(2x - 3) + 6(x - 1) =$

$= 4x^2 - 9 + 6x - 6 =$

$= 4x^2 + 6x - 15$

b) $(a + 5)^2 - (a - 1)^2 =$

$= a^2 + 10a + 25 - (a^2 - 2a + 1) =$

$= a^2 + 10a + 25 - a^2 + 2a - 1 =$

$= 12a + 24$

3

4. Poenostavi izraz in izračunaj njegovo vrednost za $x = \frac{1}{2}$:

$4x + (-x - 3) - (x - 3(4 - 2x) + 8) =$

$= 4x - x - 3 - (x - 12 + 6x + 8) =$

$= 3x - 3 - x + 12 - 6x - 8 =$

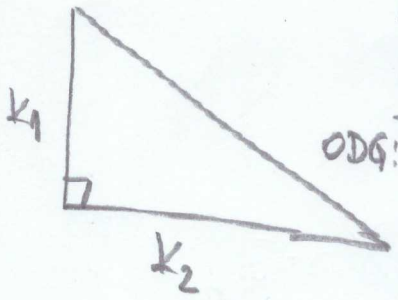
$= -4x + 1 =$

$= -4 \cdot \frac{1}{2} + 1 =$

$= -2 + 1 = -1$

4

5. Pravokotni trikotnik ima kateti dolgi 8 cm in 15 cm. Izračunaj njegovo ploščino in obseg.



$k_1 = 8\,cm$

$k_2 = 15\,cm$

$h^2 = k_1^2 + k_2^2$

$h^2 = 8^2 + 15^2$

$h^2 = 64 + 225$

$h^2 = 289$

$h = 17\,cm$

ODG: $p = 60\,cm^2$, $o = 40\,cm$

$o = 8 + 15 + 17$

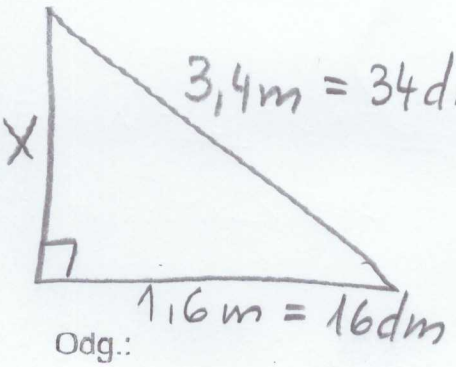
$o = 40\,cm$

$p = \frac{k_1 \cdot k_2}{2}$

$p = \frac{8 \cdot 15 \cdot 4}{2 \cdot 1} = 60\,cm^2$

2

6. Ob zid je prislonjena 3,4 m dolga lestev. Do katere višine sega lestev, če je na tleh 1,6 m od zidu?



$X^2 = 34^2 - 16^2$

$X^2 = 1156 - 256$

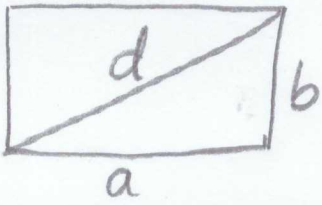
$X^2 = 900$

$X = 30$ dm

Odg.: Lestev gre do višine 3m.

4

7. Izračunaj obseg in ploščino pravokotnika z diagonalo 15 cm in eno stranico 9 cm.



$d = 15$cm
$a = 9$cm
$o = 42$cm
$p = 108$cm^2
$b = 12$cm

① $b^2 = d^2 - a^2$

$b^2 = 15^2 - 9^2$

$b^2 = 225 - 81$

$b^2 = 144$

$b = 12$cm

② $p = a \cdot b$

$p = 12 \cdot 9$

$p = 108$

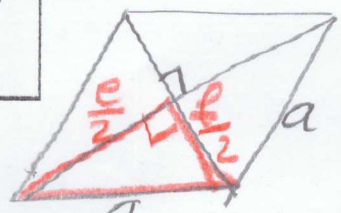
③ $o = 2a + 2b$

$o = 2 \cdot 9 + 2 \cdot 12$

$o = 18 + 24 = 42$cm

4

8. Izračunaj obseg in ploščino romba z diagonalama 12 cm in 16 cm.



$e = 12$cm
$f = 16$cm
$o = 40$cm
$p = 96$cm^2

① $p = \frac{e \cdot f}{2}$

$p = \frac{12 \cdot 16 \cdot 8}{8 \cdot 1}$

$p = 96$cm^2

② $a^2 = \left(\frac{e}{2}\right)^2 + \left(\frac{f}{2}\right)^2$

$a^2 = 6^2 + 8^2$

$a^2 = 36 + 64$

$a^2 = 100$

$a = 10$cm

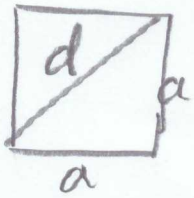
③ $o = 4a$

$o = 4 \cdot 10$

$o = 40$cm

3

9. Izračunaj obseg in ploščino kvadrata z diagonalo d = $16\sqrt{2}$ cm.



$d = 16\sqrt{2}$ cm
$o = 64$cm
$p = 256$cm^2

$d = a\sqrt{2}$

$16\sqrt{2} = a\sqrt{2}$

$a = 16$ cm

$o = 4 \cdot a$

$o = 4 \cdot 16$

$o = 64$cm

$p = a^2$

$p = 16^2$

$p = 256$cm^2

4

10. Enakokraki trikotnik ima obseg 1 m in krak dolg 41cm. Izračunaj njegovo ploščino.

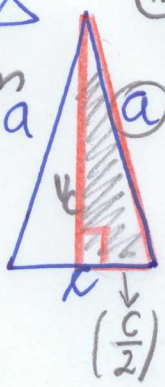
enakokraki △

$o = 1m = 100cm$

$a = 41cm$

$p =$

$c = 18cm$



① $o = 2a + c$

② $100 = 2 \cdot 41 + c$

$100 = 82 + c$

$c = 100 - 82$

$c = 18cm$

③ $p = \frac{c \cdot v_c}{2}$

$p = \frac{18 \cdot 40}{2}$

$p = 360cm^2$

$41 \cdot 41$

164

41

1681

② $v_c^2 = a^2 - \left(\frac{c}{2}\right)^2$

$\frac{c}{2} = 9$

$9^2 = 81$

$v_c^2 = 1681 - 81$

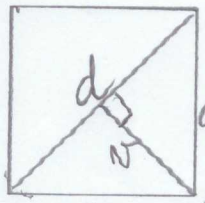
$v_c = 1600$

$v_c = 40cm$

ODG: Ploščina trikotnika je 360cm

DODATNE NALOGE

1. Diagonala razdeli kvadrat na dva pravokotna trikotnika. Izračunaj višino na hipotenuzo nastalega trikotnika, če je stranica kvadrata 5 cm.



② $v = \frac{d}{2} = \frac{5\sqrt{5}}{2}$ cm

① $d = a\sqrt{5}$

$d = 5\sqrt{5}$

$a = 5cm$

2. Razstavi izraze:

a) $25 - a^2 = (5 - a)(5 + a)$

b) $\frac{x^2}{9} - 1{,}44 = \left(\frac{x}{3} - 1{,}2\right)\left(\frac{x}{3} + 1{,}2\right)$

c) $a^2 + 20a + 100 = (a + 10)^2$

d) $16x^2 - 8x + 1 = 16\left(x^2 - \frac{1}{2}x + \frac{1}{16}\right) =$

e) $-a^3 + \frac{1}{4}a = a\left(-a^2 + \frac{1}{4}\right) =$

f) $x^2 - 8x + 12 = (x - 6)(x - 2)$

$= a\left(\frac{1}{4} - a^2\right) = a\left(\frac{1}{2} - a\right)\left(\frac{1}{2} + a\right)$

d) $16\left(x - \frac{1}{4}\right)^2$