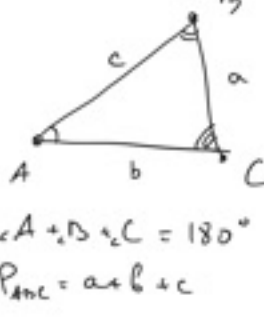
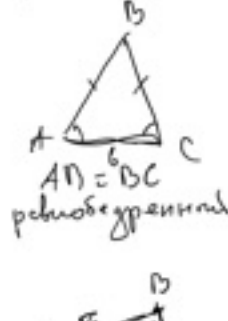


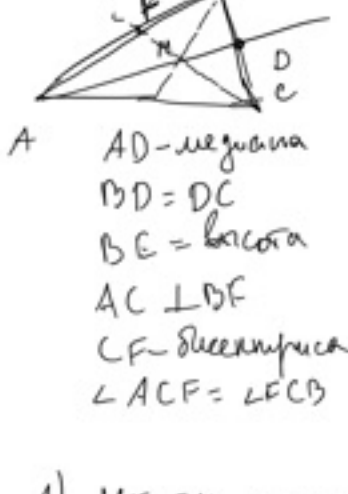
Day 7

Easy 13, 4, 5, 6



$$P_{ABC} = a + b + c$$

$$S_{ABC} = \frac{1}{2} AC \cdot h$$



A AD - mediana
BD = DC
BC = b
AC \perp DF
CF - bisectrica
\angle ACF = \angle FCB

1) Nes r.k. gromota omptogno? ne sobnagaes

3) $30 + 40 + 100 = 170^\circ < 180$ (nes ne mones)

4) $20 + 60 + 95 = 175 < 180$ (nes ne mones)

5) $50 + 53 + 77 = 180 = 180^\circ$ (Sobn.)

6) $\angle A = 31^\circ$ $\angle B = 60^\circ$ $C = ?$

$$180 - 31 - 60 = 89^\circ C$$

$$C = 89$$

Medium 5, 15, 20

$$5) xy - 5x + 3y - 15 =$$

$$x \cdot y + x \cdot (-5) + 3 \cdot y + 3 \cdot (-5) =$$

$$= x(y - 5) + 3(y - 5) = (y - 5)(x + 3)$$

$$6) xy + 7 + y + 7x =$$

$$= (xy + y) + (7 + 7x) =$$

$$= y(x + 1) + 7(1 + x) =$$

$$= (x + 1)(y + 7)$$

$$7) xy - 8 + y - 8x =$$

$$= (xy + y) + (-8 - 8x) =$$

$$= y(1 + x) + (-8)(1 + x) =$$

$$= (1 + x)(y - 8)$$

$$8) xy + 9 + 3y + 3x =$$

$$= (xy + 3y) + (9 + 3x) =$$

$$= y(x + 3) + 3(3 + x) =$$

$$= (x + 3)(y + 3)$$

$$9) xy - 21 + 3y - 7x =$$

$$= (xy + 3y) - (21 - 7x) =$$

$$= y(x + 3) - 7(3 - x) =$$

$$= (x + 3)(y - 7)$$

$$10) xy - x - y + 1 =$$

$$= x(y - 1) - 1(y - 1) =$$

$$= (y - 1)(x - 1)$$

$$11) xy - 4x - y + 4 =$$

$$= (xy - y) - (4x - 4) =$$

$$= y(x - 1) - 4(x - 1) =$$

$$= (x - 1)(y - 4)$$

$$12) xy + 3x - y - 3 =$$

$$= (xy - y) - (3x + 3) =$$

$$= y(1 - x) - 3(x + 1) =$$

$$= y(x + 1) - 3(x + 1) =$$

$$= (x + 1)(y - 3)$$

$$13) xy - 9x - 3y + 27 =$$

$$= (xy - 3y) - (9x - 27) =$$

$$= y(x - 3) - 9(x - 3) =$$

$$= (x - 3)(y - 9)$$

$$14) xy + 4x - 5y - 20 =$$

$$= (xy + 4x) - (5y - 20) =$$

$$= x(y + 4) - 5(y + 4) =$$

$$= (y + 4)(x - 5)$$

$$15) 2x^2y + 6x - y - 3 =$$

$$= (2x^2y - y) + (6x - 3) =$$

$$= y(2x - 1) + 3(2x - 1) =$$

$$= (2x - 1)(y + 3)$$

$$16) x^3 + x^2 + x + 1 =$$

$$= (x^3 - x^2) + (x + 1) =$$

$$= x^2(x - 1) - 1(x - 1) =$$

$$= (x - 1)(x^2 + 1)$$

$$17) x^4 + 4x^2 + x^2 + 4 =$$

$$= (x^4 + x^2) + (4x^2 + 4) =$$

$$= x^2(x^2 + 1) + 4(x^2 + 1) =$$

$$= (x^2 + 1)(x^2 + 4)$$

$$18) x^4 - 3x^3 + x - 3 =$$

$$= (x^4 + x) + (-3x^3 - 3) =$$

$$= x(x^3 + 1) - 3(x^3 + 1) =$$

$$= (x^3 + 1)(x - 3)$$

$$19) 2x^5 + 2x^3 + 3x^2 + 3 =$$

$$= (2x^5 + 2x^3) + (3x^2 + 3) =$$

$$= 2x^3(x^2 + 1) + 3(x^2 + 1) =$$

$$= (x^2 + 1)(2x^3 + 3)$$

$$20) 4x^6 - 2x^5 - 6x + 3 =$$

$$= (4x^6 - 2x^5) - (6x - 3) =$$

$$= 2x^5(2x - 1) - 3(2x - 1) =$$

$$= (2x - 1)(2x^5 - 3)$$

Hard, 21

$$x^2 - x - 6 =$$

$$= x^2 - 3x + 2x - 6 =$$

$$= x \cdot x + x \cdot (-3) + 2 \cdot x + 2 \cdot (-3) =$$

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

$$6) a^2 - b^2 - 12b - 36 =$$

$$= a^2 - (b + 6)^2 =$$

$$= (a - (b + 6))(a + (b + 6)) =$$

$$= (a - b - 6)(a + b + 6)$$