

	Navn:		Skole:	
	Klasse: 20		Dato: 5. marts 2023	Fag: Matematik A

Opgave 010

Opg 11

$AB=7$
 $BC=5$
 $AC=6$

$a^2 = b^2 + c^2 - 2bc \cos(A)$
 $7^2 = 5^2 + 6^2 - 2 \cdot 5 \cdot 6 \cdot \cos(A)$
 $49 = 25 + 36 - 60 \cos(A)$
 $49 = 61 - 60 \cos(A)$
 $-12 = -60 \cos(A)$
 $\frac{12}{60} = \cos(A)$
 $\frac{2}{5} = \cos(A)$
 $\cos^{-1}(\frac{2}{5}) = A$
 $A = 25^\circ$

Opg 12

$AC=6$
 $BC=8$
 $DF=9$
 $x = \frac{DF}{AC}$
 $x = \frac{9}{6}$
 $x = 1.5$
 $IEF = DC \cdot x$
 $IEF = 8 \cdot 1.5$
 $IEF = 12$

Opg 13

$B = 96^\circ$
 $AD = 120$
 $C = 40^\circ$
 $A = 180 - 96 - 40$
 $A = 44^\circ$
 $b = 263.03$
 $\frac{b}{\sin(B)} = \frac{c}{\sin(C)}$
 $b = \frac{c}{\sin(C)} \cdot \sin(B)$
 $b = \frac{120}{\sin(40)} \cdot \sin(96)$

Opg 14

$A = 52.3^\circ$
 $C = 131.5^\circ$
 $S = c \cdot \sin(A)$
 $S = 131.5 \cdot \sin(57.3)$

Opg 15

$A(8,5)$
 $Y = -x + 2$
 $a_1 = -1$
 $b_1 = 2$
 $a_2 = 1$
 $b_2 = -2$
 $A_1 = a_2 \cdot A_1 + b_2$
 $A_1 = 1 \cdot (-1) + (-2)$
 $A_1 = -3$
 $Y_2 = X - 2$
 $D = \sqrt{48 - 4 \cdot 5^2 + 4 \cdot 6 - 2 \cdot 5^2}$
 $D = 4.95$

Opg 16

$C: (x-4)^2 + (y-5)^2 = 3^2$
 $1: Y = X - 2$
 $(x-4)^2 + (x-2-5)^2 = 3^2$
 $(x-4)^2 + (x-7)^2 = 9$
 $(x-4)^2 + (x-7)^2 - 10x + 25 = 9$
 $x^2 - 8x + 16 + x^2 - 14x + 49 - 10x + 25 = 9$
 $2x^2 - 22x + 84 = 9$
 $2x^2 - 22x + 75 = 0$
 $a = 2$
 $b = -22$
 $c = 75$
 $x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $x_1 = 4$
 $x_2 = 7$
 $y_1 = 4 - 2 = 2$
 $y_2 = 7 - 2 = 5$
 $P_1(4, 2)$
 $P_2(7, 5)$

Opg 17

$C: (x-2)^2 + (y-3)^2 = 5^2$
 $x = 2$
 $y = 3$
 $2x + y - 7 = 0$
 $2 \cdot 2 + 3 - 7 = 0$
 $7 - 7 = 0$
 $0 = 0$

Opg 18

$x = 2$
 $y = 3$
 $2x + y - 7 = 0$
 $2 \cdot 2 + 3 - 7 = 0$
 $7 - 7 = 0$
 $0 = 0$

Opg 19

$b = 4$
 $P(2, 0)$
 $y = a \cdot x + b$
 $y - b = a \cdot x$
 $a = \frac{y - b}{x}$

Opg 20

$a(1, 1)$
 $|a| = \sqrt{x^2 + y^2}$
 $= \sqrt{1^2 + 1^2}$
 $= \sqrt{2}$
 $= 1.41$