

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

Opgave 010

Opg 11

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

$a^2 = b^2 + c^2 - 2bc \cdot \cos(A)$
 $7^2 = 5^2 + 6^2 - 2 \cdot 5 \cdot 6 \cdot \cos(A)$
 $49 = 25 + 36 - 60 \cos(A)$
 $49 = 61 - 60 \cos(A)$
 $-12 = -60 \cos(A)$
 $\cos(A) = \frac{12}{60} = \frac{1}{5}$
 $A = \cos^{-1}(\frac{1}{5}) \approx 78.4^\circ$
 $A = 78.4^\circ$

Opg 12

$|AC| = 6$
 $|BC| = 8$
 $|AB| = 9$
 $x = \frac{|AB|}{|AC|}$
 $x = \frac{9}{6}$
 $x = 1.5$
 $|EF| = |DC| \cdot x$
 $|EF| = 8 \cdot 1.5$
 $|EF| = 12$

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

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

Opg 15

$A(8,5)$
 $Y = -X + 2$
 $a_1 = 1$
 $b_1 = -2$
 $a_2 = -1$
 $b_2 = 1$
 $A_1 = a_2 \cdot A_1 + b_2$
 $A_1 = -1 \cdot 8 + 1$
 $A_1 = -7$
 $A_2 = a_1 \cdot A_2 + b_1$
 $A_2 = 1 \cdot 5 + (-2)$
 $A_2 = 3$
 $D = \sqrt{(-7-8)^2 + (3-5)^2}$
 $D = \sqrt{169 + 4}$
 $D = \sqrt{173}$
 $D \approx 13.15$

Opg 16

$C: (x-4)^2 + (y-5)^2 = 3^2$
 $1: Y = X - 2$
 $C: (x-4)^2 + (y-5)^2 = 3^2$
 $C: (x-4)^2 + (x-2-5)^2 = 3^2$
 $C: (x-4)^2 + (x-7)^2 = 9$
 $C: (x^2 - 8x + 16) + (x^2 - 14x + 49) = 9$
 $2x^2 - 22x + 65 = 9$
 $2x^2 - 22x + 56 = 0$
 $x^2 - 11x + 28 = 0$
 $(x-4)(x-7) = 0$
 $x_1 = 4$
 $x_2 = 7$
 $y_1 = 4 - 2 = 2$
 $y_2 = 7 - 2 = 5$
 $P_1(4, 2)$
 $P_2(7, 5)$

Opg 17

$C: (x-2)^2 + (y-3)^2 = 5^2$
 $X = 2$
 $Y = 3$
 $r = 5$

Opg 18

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

Opg 19

$b = 4$
 $P(2, 0)$
 $Y = aX + b$
 $Y - b = aX$
 $a = \frac{Y - b}{X}$

Opg 20

$a = \frac{0 - 4}{2}$
 $a = -2$
 $Y = -2X + 4$
 $|a| = \sqrt{x^2 + y^2}$
 $|a| = \sqrt{(-2)^2 + 4^2}$
 $|a| = \sqrt{4 + 16}$
 $|a| = \sqrt{20}$
 $|a| = 2\sqrt{5}$