Q1: Is the statement "this statement is false" an admissible statement, i.e., does it fulfill the requirements of the definition?

Yes

No

For Q2 and Q3, the statements $A(n)$, $B(n)$, $C(n)$, and $D(n)$ are that n is divisible by 2, 3, 4, and 6, respectively.

Q2: $\forall n \quad A(n) \wedge B(n) \iff$

$C(n)$

$D(n)$

$A(n) \vee B(n)$

$A(n)$

Q3: $\forall n \quad A(n) \wedge C(n) \iff$

$A(n)$

$C(n)$

$A(n) \vee C(n)$

$A(n) \wedge A(n)$

Q4: Which of the following pictures could be the graph of a function?
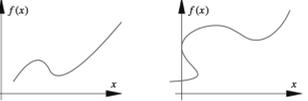
Both

The left figure

The right figure

Neither

Q5: Is $\text{Re}((3+i)^4(5-7i)) = \text{Re}((3-i)^4(5+7i))$?

True

False

Q6 *(multiple)*: For every complex number $z = x + iy$ it is $z \cdot \bar{z} = \ldots$

$|z|$

$x^2 + y^2$

$x^2 - y^2$

$x^2 + iy^2$

the distance of z to the origin

Don't know.

Q7: For every complex number $z = x + iy$ it is $\text{Re}(z) = \ldots$

$\dfrac{z - \bar{z}}{2}$

$\dfrac{z \cdot \bar{z}}{2}$

$\dfrac{z + \bar{z}}{2}$

$z + \bar{z}$

Don't know.

Q8: Which number is the complex conjugate of z?

w_1

w_2

w_3
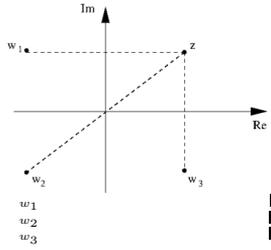
Q9: Which point belongs to $1/z$ für $z \neq 0$?
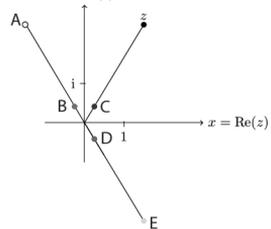
A

B

C

D

E

Q10: For a given complex z_0 let M be the set $M = \{z \in \mathbb{C} \mid |z - z_0| = 16\}$. Then M describes a circle with radius 4 and center z_0.

This statement is correct

This statement is false

Q11: What is the geometrical meaning of the mapping $\mathbb{C} \to \mathbb{C} : z \to -iz$?

Mirrored at the x-axis

Mirrored at the y-axis

Counter-clockwise rotation by $\pi/2$

Clockwise rotation by $\pi/2$

Q12: Let z be a complex number with absolute value 1 and argument φ. For which φ is z located in the second quadrant?

$4\pi/3$

$-4\pi/3$

$5\pi/4$

$-4\pi/5$

Q13: With $\lambda = -3 - 4i$, its argument is …

$0 < \arg(\lambda) < \pi/2$

$\pi/2 < \arg(\lambda) < \pi$

$-\pi < \arg(\lambda) < -\pi/2$

$-\pi/2 < \arg(\lambda) < 0$

Q14: With $\lambda = 1 + iy$, for which y is the argument of λ negative?

$y = -1$

$y = 0$

$y = 1$

$y = 2$

Q15: The argument of the complex number $\cos\left(\dfrac{2\pi}{3}\right) - i\sin\left(\dfrac{2\pi}{3}\right)$ is …

$2\pi/3$

$-2\pi/3$

$-\pi/3$

$\pi/3$

Q16 *(multiple)*: Let z be a complex number $z = x + iy$ with absolute value 1 and angle φ. For which φ is z located in the third quadrant?

$4\pi/3$

$-4\pi/3$

$-5\pi/4$

$-4\pi/5$

Q17 *(multiple)*: With $\lambda = x - i$, for which x is the argument of λ negative?

$x = -1$

$x = 0$

$x = 1$

$x = 2$

Q18: What is the real part of e^{-i}?

1

-1

$\cos(1)$

$\sin(1)$

Q19: The statement $|e^{i\varphi}| = 1$ for all φ …

is false

is true