

Question block created by wizard

This exam contains 32 questions

1. According to the basic rules, calculate: $(2 + 4) \cdot 3 : 6 - 5 =$

- a. 18
- b. -2
- c. -1

2. Which statement is correct? 3 divided by 4 is..

- a. 1,33
- b. 0,25
- c. 0,75

3. Calculate: $128 \cdot 173 =$

- a. 3460
- b. 22144
- c. 9344

4. Calculate: $\frac{2}{4} \cdot \frac{1}{4} =$

- a. $\frac{1}{8}$
- b. $\frac{1}{2}$
- c. 2

5. 3,5 inch = cm

- a. 1,16
- b. 8,9
- c. 1,38

6. The area of a circle with a radius of 5 cm is.. ($\pi = 3,14$)

- a. $7,96 \text{ cm}^2$
- b. $15,7 \text{ cm}^2$
- c. $78,5 \text{ cm}^2$

7. $\sqrt{(64)} =$

- a. 8

- b. 2
- c. 10

8. $7^2 =$

- a. 49
- b. 14
- c. 3,5

9. Calculate $a-a-b+c =$

- a. $-b + c$
- b. $-2a-b+c$
- c. $b + c$

10. Calculate: $\frac{2}{a} + \frac{3}{b} =$

- a. $\frac{3a+2b}{ab}$
- b. $\frac{3a+2b}{a+b}$
- c. $\frac{5}{a+b}$

11. Calculate: $\frac{ab}{b} \cdot \frac{a}{c} =$

- a. c
- b. $\frac{a^2}{c}$
- c. $\frac{1}{c}$

12. Calculate: $\frac{3x}{4y} + \frac{5x}{y}$

- a. $\frac{8x}{4y^2}$
- b. $\frac{23x}{4y}$
- c. $\frac{8x}{4y}$

13. Calculate: $3(a+b) =$

- a. $3a + 3b$
- b. $3b+a$
- c. $3a+b$

14. Calculate: $(a+b) \cdot (a+b) =$

- a. $a^2 + b^2$

- b. $a^2 + 2ab + b^2$
- c. $2ab + b^2$

15. Calculate $\frac{1}{3}a + \frac{1}{4}a =$

- a. $\frac{1}{3}a$
- b. $\frac{1}{12}a$
- c. $\frac{7}{12}a$

16. Calculate: $\frac{1}{6}a \cdot \frac{1}{3}b =$

- a. $\frac{1}{18} \cdot ab$
- b. $18ab$
- c. $1 / (18ab)$

17. When solving linear equations, the first step to do is (if available)

- a. rearrange both sides.
- b. Transfer from right hand side to left hand side and vice versa, make sure that only the variable on the left side remains.
- c. eliminate the brackets.

18. Solve according to the rules of linear equations: $5(3k-7)+7 = 7(2k-4)$

- a. $29k = -56$
- b. $k = 0$
- c. $15k - 35 = 14k - 28$

19. $4^{1/2} =$

- a. $2\sqrt{2}$
- b. $4 \cdot 0,5$
- c. $\sqrt{4}$

20. $17_{(10)} = \dots\dots\dots_{(8)}$

- a. 21
- b. 17
- c. 20

21. Solve: $x^2 - 2x = 8$

- a. $x = 4$ or $x = 2$
- b. $x = -4$ or $x = 2$
- c. $x = 4$ or $x = -2$

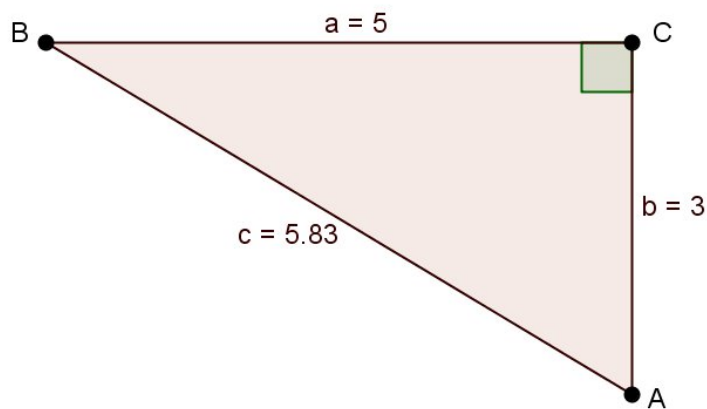
22. We can write: $b^x = y$ as.....

- a. ${}^x\log(b) = y$
- b. ${}^y\log(b) = x$
- c. ${}^b\log(y) = x$

23. The sinus of an angle is:

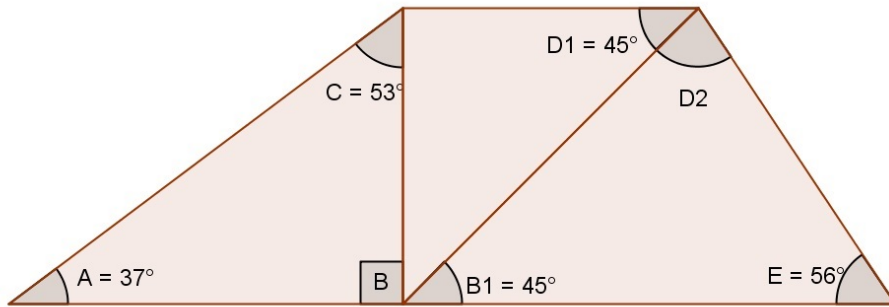
- a. adjacent divided by the opposite.
- b. adjacent divided by the hypotenus.
- c. opposite divided by the hypotenus.

24. The sine of angle A is?



- a. $300 / 583$
- b. $583 / 500$
- c. $500 / 583$

25. Determine the magnitude of angle D2 ?

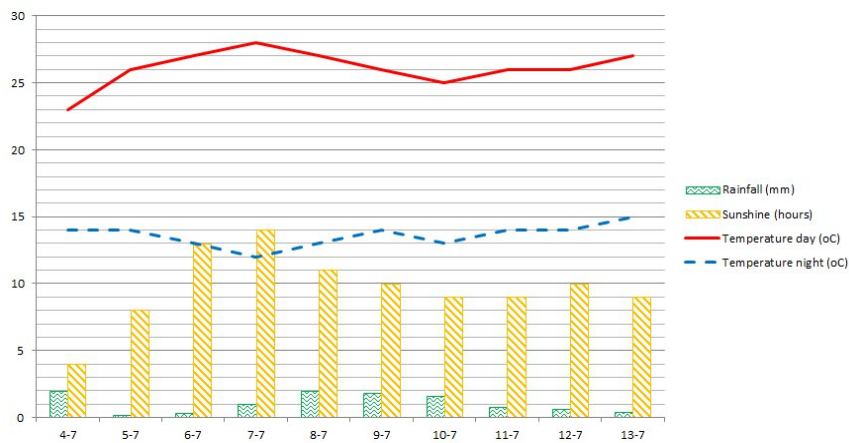


- a. 80°
- b. 79°
- c. 81°

26. Equation: $y = -2x - 5$

- a. The number -5 represents the point of the intersection with the y-axis.
- b. The number -5 represents the slope of the graph.
- c. The number -5 represents the point of the intersection with the x-axis.

27. How much rain has fallen on the 7th and 8th of July combined?

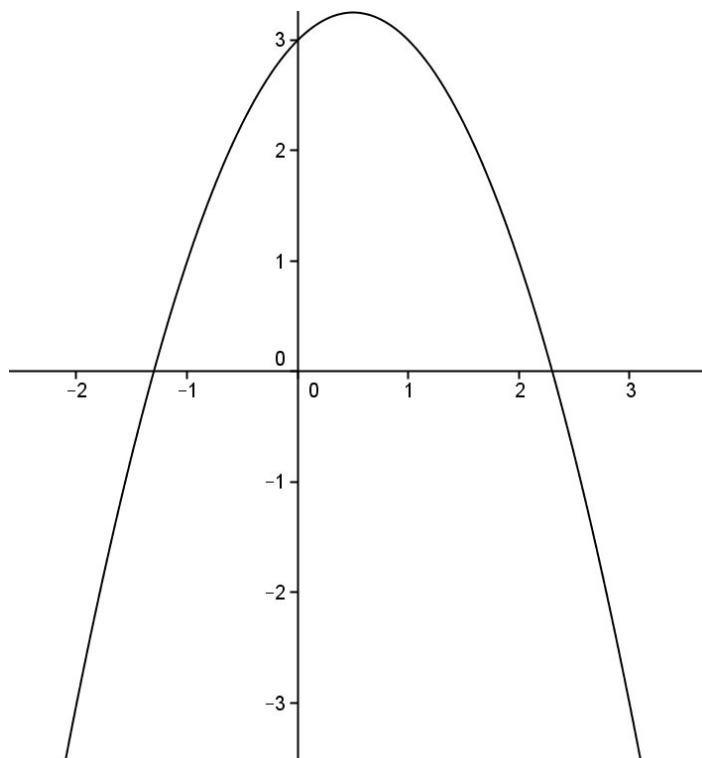


- a. 3 mm
- b. 2 mm
- c. 1 mm

28. Determine the point of intersection with the y-axis of the straight line ($y=ax+b$) that passes through the points $(-2,3)$ and $(-5,9)$.

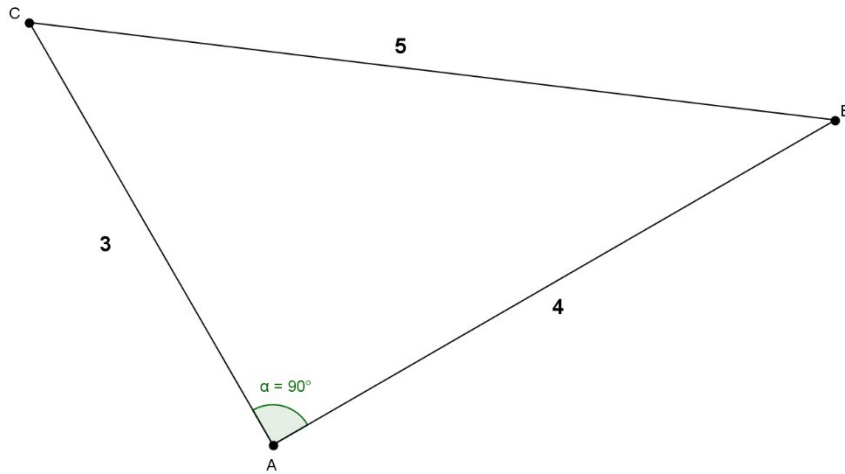
- a. $y = -1$
- b. $y = -0,5$
- c. $y = -8/11$

29. Determine the function of the graph in the figure below.



- a. $y = x^2+x+3$
- b. $y = -x^2+x+3$
- c. $y = x^2+x-3$

30. Calculate the shortest rectangular side if the hypotenuse has a length of 45 cm.



- a. 27 cm
- b. 75 cm
- c. 36 cm

31. Which rivet do we use to fasten two steel plates, one of 6 mm and the other of 4 mm thickness. The hole diameter is 5 mm.

Rivets

Check DIN 7337

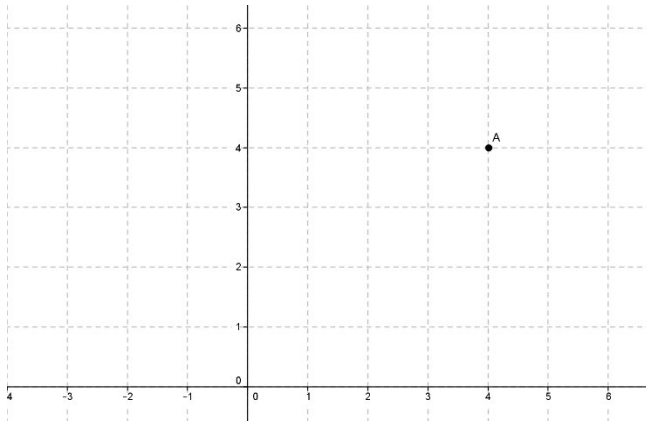
$d = \text{diameter rivet}$
 $l = \text{shaft length}$
 $b = \text{joint thickness}$

sizes in mm

$d = 3$		$d = 4$		$d = 5$		$d = 6$	
l	b	l	b	l	b	l	b
aluminum rivet							
3,5	1 - 1,5	4	1 - 1,5	5	1 - 2,5	8	1- 4
4,5	1,5- 2,5	5	1,5- 2,5	6	2,5-3,5	10	4- 6
5,5	2,5- 3,5	6	2,5- 3,5	8	3,5- 5	12	6- 8
6,5	3,5- 4,5	7	3,5- 4,5	10	5 -7	16	8-12
8	4,5- 6,5	8	4,5- 6	12	7 - 9,5	18	12-14
10	6,5- 8	10	6 - 7,5	14	9,5-11,5	22	14-18
12	8 -10	12	7,5-10	16	11,5-13		
steel rivet							
4,5	1 -2	6	1-3	8	2,5- 4,5		
6,5	1,5-3,5	8	3-5	10	4,5- 6,5		
8	3,5-5	10	5-7	12	6,5- 8,5		
10	5 -7	12	7-9	14	8,5-10,5		

- a. The length of the rivet is 10 mm.
- b. The length of the rivet is 14 mm.
- c. The length of the rivet is 12 mm.

32. Determine the polar coordinates of point A in the drawing.



- a. $(4\sqrt{2}) ; -45$ degrees)
- b. $(2\sqrt{4}) ; -45$ degrees)
- c. $(4\sqrt{2}) ; 45$ degrees)