Question block created by wizard

This exam contains 32 questions

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

a. -1
b. 18
c. -2

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

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

3. Calculate: 128 · 173 =

a. 22144
b. 3460
c. 9344

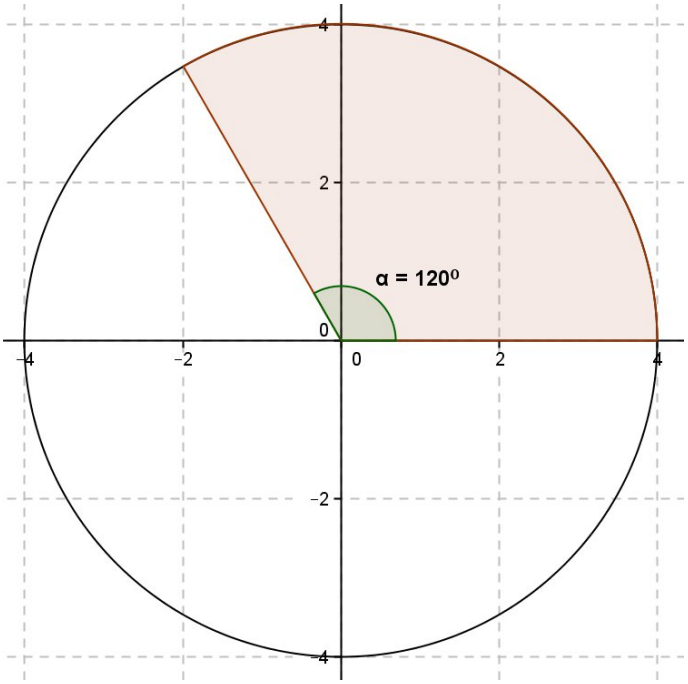
4. Calculate: $^{2}/_{4} \cdot {}^{1}/_{4}$ =

a. $^{1}/_{8}$
b. 2
c. $^{1}/_{2}$

5. Calculate the average of the numbers: 60, 80, 20, 50, 70, 30, 40.

a. 50
b. 55
c. 60

6. Calculate the area of the circle-sector given in the picture.



a. $4^{4}/_{9}\pi$

b. $3^{5}/_{9}\pi$

c. $5^{1}/_{3}\pi$

7. √(64) =

a. 10
b. 2
c. 8

8. 7^{2} =

a. 14
b. 3,5
c. 49

9. Calculate a-a-b+c =

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

10. Calculate: $^{2}/_{a} + {}^{3}/_{b} =$

a. (3a+2b) / (ab)
b. (3a+2b) / (a+b)
c. 5 /(a+b)

11. Calculate: $^{ab}/_{b} \cdot {}^{a}/_{c} =$

a. a^2 /c
b. c
c. 1/c

12. Calculate: $^{3x}/_{4y} + {}^{5x}/_{y}$

a. 8x / 4y
b. 8x / $4y^2$
c. 23x / 4y

13. Calculate: 3(a+b) =

a. 3a + 3b
b. 3a+b
c. 3b+a

14. Calculate: (a+b) · (a+b) =

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

15. Calculate $^{1}/_{3}$ a + $^{1}/_{4}$ a =

a. $^{1}/_{12}$ a
b. $^{1}/_{3}$ a
c. $^{7}/_{12}$ a

16. Calculate: $^{1}/_{6}$ a • $^{1}/_{3}$ b =

a. 1 / (18ab)
b. $^{1}/_{18}$ · ab
c. 18ab

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

a. eliminate the brackets.
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. rearrange both sides.

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

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

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

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

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

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

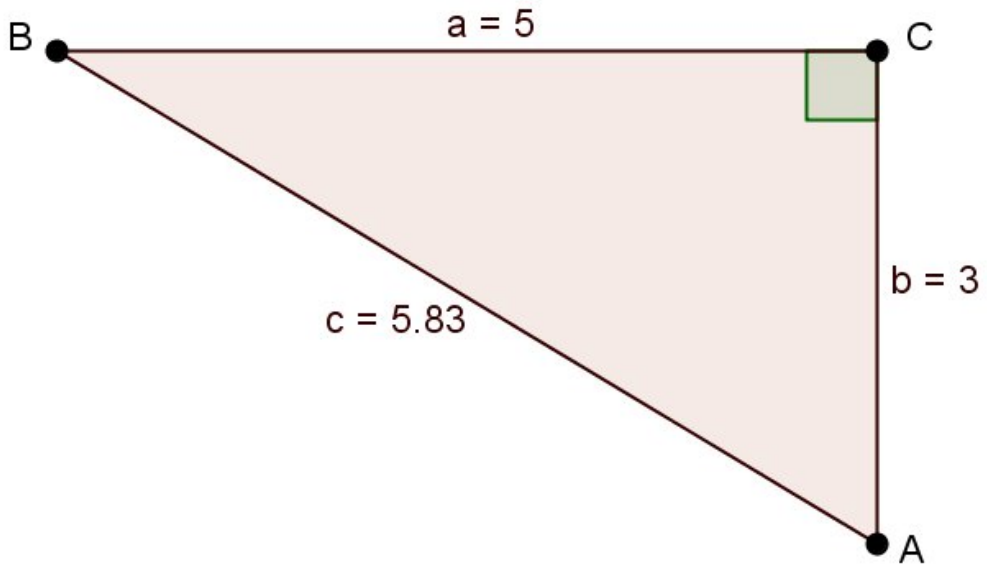
22. We can write: $b^x = y$ as.....

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

23. The sinus of an angle is:

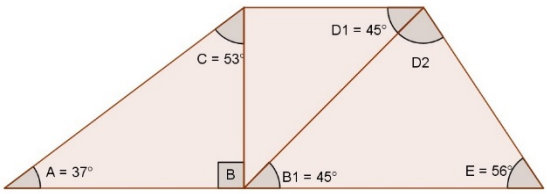
a. opposite divided by the hypotenus.
b. adjacent divided by the hypotenus.
c. adjacent divided by the opposite.

24. The sine of angle A is?



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

25. Determine the magnitude of angle D2 ?



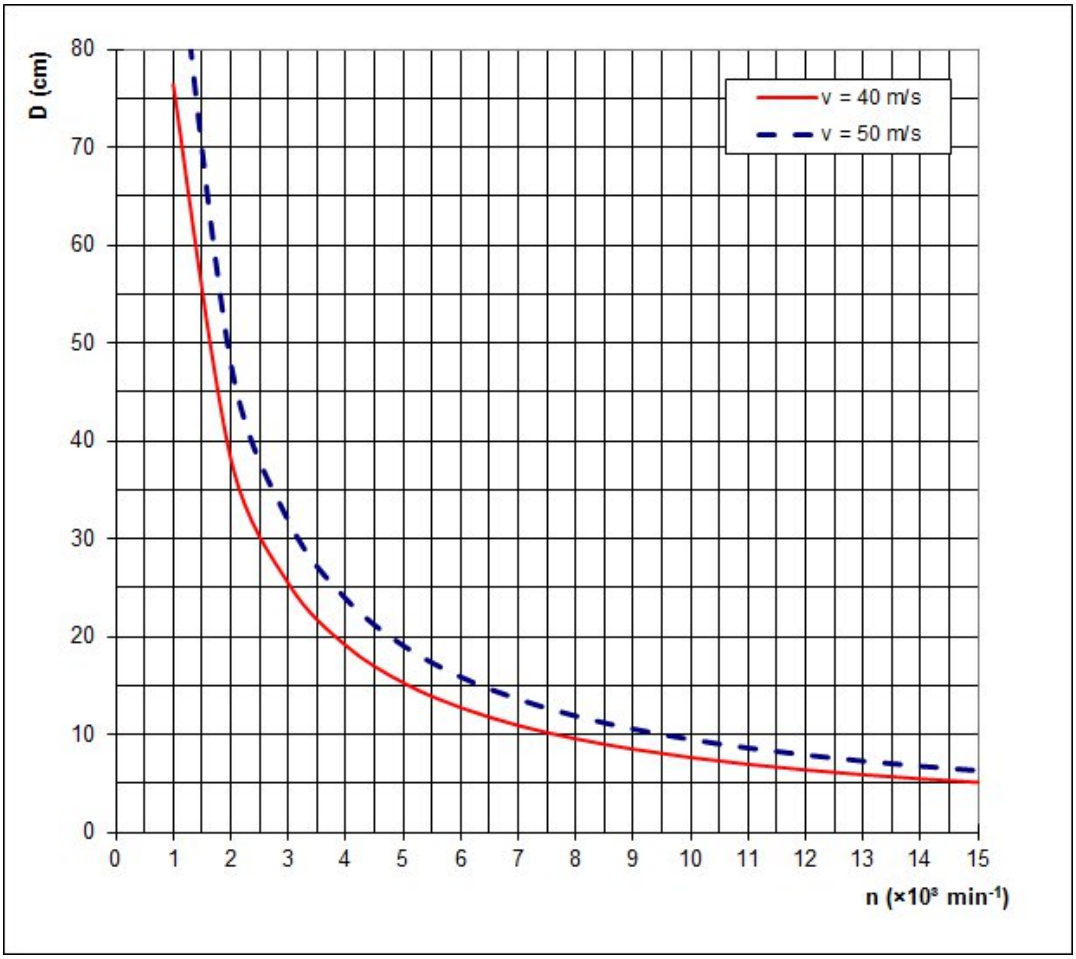
a. 80°
b. 79°
c. 81°

26. Equation : $y = -x^2+3x-4$. If $x = 5$.

a. The equation represents a top parabola that opens downward.
b. The equation represents a dal parabola that opens upward.
c. The equation represents a straight line through the point (5,-14).

27. In the figure below you see 2 charts for the rotational speed of a cutter relative to the cutter diameter.

Determine the RPM if you need a cutter of 15 cm with a cutter speed of 40 m/s.

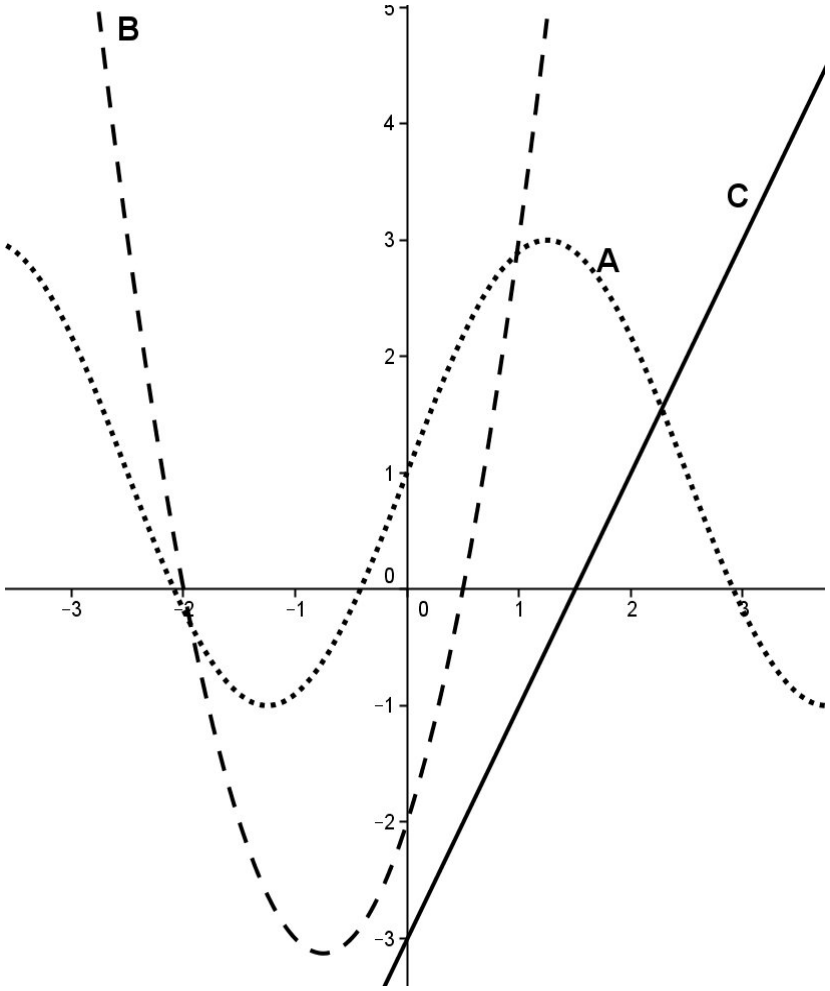


a. 5500 RPM
b. 7500 RPM
c. 9500 RPM

28. Determine the equation of the straight line that passes through the points (1,3) and tan with the x-axis = 2.

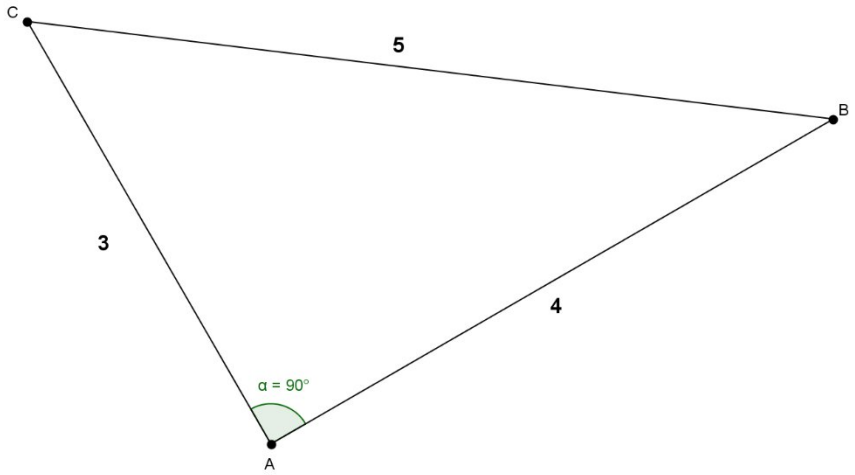
a. y = 0,5x+8,5
b. y = 0,5x+2,5
c. y = 2x+1

29. Three kinds of graphs are shown. Which graph belongs to the equation $y = 2x^2+3x-2$?



a. Graph C
b. Graph A
c. Graph B

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



a. 75 cm
b. 27 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

b = joint thickness

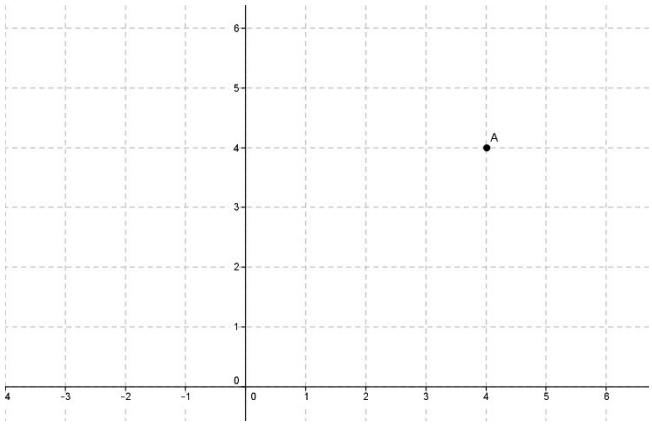
d = diameter rivet
l = shaft length

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