



DEMO_TIEC_Math

1. The polynomial $p(a) = 4a^3 - 2a^2 - 2a$ is divisible by

- (a+1)
- (a - 1)
- (a+2)
- (a - 2)

2. Let $x = (9999)^2 - (10001)^2$. Then

- $x = -40000$
- $x = 20000$
- $x = -4000$
- $x = -20000$

3. The inequality $(2x + 7)(x - 4)^2 \leq 0$ is satisfied for

- $x \leq -7/2 \vee x = 4$
- $x \leq -7/2$
- $-7/2 \leq x \leq 4$
- $x \leq -7/2 \vee x \geq 4$

4. The equation with roots $x = 1$ and $x = -2$ is

- $(x - 1) / (x + 2) = 0$
- $x^2 - x + 2 = 0$
- $x^2 + x - 2 = 0$
- $(x - 2)(x + 1) = 0$

5. The equality $2^{(1+3a)} - (1/8)^{a+2} = 0$ holds for

- $a = -7/6$
- No value of a
- $a = 6/7$
- $a = -1$

6. For which k the line $3ky - 2x + 4k = 0$ has slope equal to 1 ?

- $k = 0$
- $k = 3/2$
- $k = 2/3$
- $k = -2/3$



7. Which of the following points belongs to the parabola $y = 2x^2 + 3x - 4$?
- $(-1; -5)$
 - $(-1; 1)$
 - $(0; 4)$
 - $(-4; 0)$
8. The circle $(x+2)^2 + (y-1)^2 = 4$
- is tangent to the y-axis
 - is centered at $(2; -1)$
 - has radius 4
 - does not intersect the x-axis
9. If $1 < x < 4$ then
- $(2x - 1) > 7$
 - $(1 - 2x) > -1$
 - $(2x - 1) < -1$
 - $(1 - 2x) < -1$
10. Let $A \cup \{a,b,c\} = \{a,b,c,d\}$ and $A \cap \{a,b,c\} = \{c\}$. Which of the following statements is false ?
- c belongs to A
 - b does not belong to A
 - $A = \{c,d\}$
 - $A = \{b,d\}$
11. The equation $\log_x(8) = -2$ is satisfied for
- $x = \sqrt{8}$
 - $x = \pm 1/\sqrt{8}$
 - $x = 1/2$
 - $x = 1/\sqrt{8}$
12. Put in ascending order the real numbers $3; \sqrt{8}; \sqrt{5} + 1$
- $3 < \sqrt{8} < \sqrt{5} + 1$
 - $\sqrt{5} + 1 < \sqrt{8} < 3$
 - $\sqrt{8} < \sqrt{5} + 1 < 3$
 - $\sqrt{8} < 3 < \sqrt{5} + 1$