ALASKA ALGEBRA II · UNIT 2 · 25 QUESTIONS

Polynomials and Rational Functions — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The factored form of $x^2 + 5x + 6$ is**

- **A** $(x + 2)(x + 3)$
- **B** $(x - 2)(x - 3)$
- **C** $(x + 1)(x + 6)$
- **D** $(x - 1)(x - 6)$

Understand It with Pulse | Flag a mistake

2 **The larger zero of $x^2 - 8x + 15$ is**

A 3

B -3

C 5

D -5

Understand It with Pulse | Flag a mistake

3 **For $f(x) = -2x^3 + x^2 - 4$, as x approaches positive infinity, f(x) approaches**

A positive infinity

B 0

C negative infinity

D 4

Understand It with Pulse | Flag a mistake

4 **The remainder when $x^3 - 2x + 5$ is divided by $x - 2$ is**

A 9

B 5

C 1

D 13

Understand It with Pulse | Flag a mistake

5 **If $f(x) = x^3 + 4x^2 - 3$, then $f(-1)$ is**

A 2

B -2

C 0

D 6

Understand It with Pulse | Flag a mistake

6 **For $f(x) = (x - 2)^2(x + 3)$, the multiplicity of the zero 2 is**

A 2

B 1

C 3

D 0

Understand It with Pulse | Flag a mistake

7 **The quotient when $x^2 + 5x + 6$ is divided by $x + 2$ is**

A $x + 2$

B $x - 3$

C $x + 6$

D $x + 3$

Understand It with Pulse | Flag a mistake

8 The sum of the zeros of $x^2 - 6x + 8$ is

- A 8
- B -6
- C 2
- D 6

Understand It with Pulse | Flag a mistake

9 The domain of $y = \frac{x + 1}{x^2 - 4}$ is

- A $x \neq 2$
- B $x \neq -2$
- C $x \neq 2$ and $x \neq -2$
- D all real numbers

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10 The vertical asymptote of $y = \frac{3}{x + 4}$ is

- **A** x = -4
- **B** x = 4
- **C** y = 4
- **D** x = 3

Understand It with Pulse | Flag a mistake

11 The horizontal asymptote of $y = \frac{2x^2 + 3}{x^2 - 1}$ is

- **A** y = 3
- **B** y = 0
- **C** y = 2
- **D** y = 1

Understand It with Pulse | Flag a mistake

12 The graph of $y = \frac{x^2 - 9}{x - 3}$ has a hole at x equal to

- **A** -3
- **B** 0
- **C** 3
- **D** 9

Understand It with Pulse | Flag a mistake

13 In simplest form, $\frac{x^2 - 16}{x + 4}$ is

- **A** x + 4
- **B** x - 4
- **C** x + 16
- **D** x - 16

Understand It with Pulse | Flag a mistake

14 **The larger solution of $x^2 - 5x = 0$ is**

A 0

B -5

C 5

D 1

Understand It with Pulse | Flag a mistake

15 **The sum $(3 + 2i) + (1 - 5i)$ is**

A $4 + 7i$

B $2 - 3i$

C $4 - 3i$

D $2 + 7i$

Understand It with Pulse | Flag a mistake

16 **The value of $(2i)^2$ is**

A 4

B -4

C 2i

D -2i

Understand It with Pulse | Flag a mistake

17 **The value of i^{23} is**

A i

B -1

C 1

D -i

Understand It with Pulse | Flag a mistake

18 **The solutions of $x^2 + 9 = 0$ are**

- **A** 3 and -3
- **B** 3i and -3i
- **C** 9i and -9i
- **D** 3 and 3i

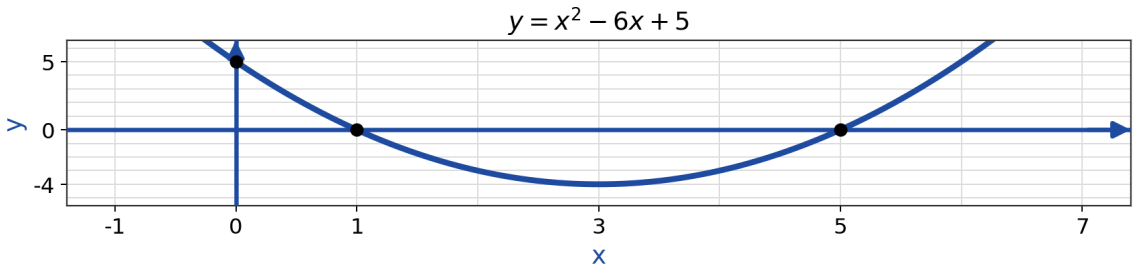
Understand It with Pulse | Flag a mistake

19 **The solution of $\frac{4}{x} = 2$ is**

- **A** 2
- **B** 8
- **C** $\frac{1}{2}$
- **D** 4

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20 **The graph below shows y = x² - 6x + 5. The smaller zero of the graph is**



A 5

B 1

C 3

D 0

Understand It with Pulse | Flag a mistake

21 **For $f(x) = 3x^4 - 2x + 1$, as x approaches negative infinity, f(x) approaches**

A negative infinity

B positive infinity

C 0

D 1

Understand It with Pulse | Flag a mistake

22 **The factored form of $x^3 - 64$ is**

A $(x - 4)(x^2 + 4x + 16)$

B $(x - 4)(x^2 - 4x + 16)$

C $(x + 4)(x^2 + 4x + 16)$

D $(x - 8)(x^2 + 8x + 64)$

Understand It with Pulse | Flag a mistake

23 The greatest number of turning points of a degree 5 polynomial is

- A 5
- B 6
- C 3
- D 4

Understand It with Pulse | Flag a mistake

24 The solution of $\frac{x}{x+3} = \frac{2}{3}$ is

ANSWER _____

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25 The remainder when $2x^3 - x + 7$ is divided by $x + 1$ is

ANSWER _____

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	A	**10.**	A	**19.**	A
2.	C	**11.**	C	**20.**	B
3.	C	**12.**	C	**21.**	B
4.	A	**13.**	B	**22.**	A
5.	C	**14.**	C	**23.**	D
6.	A	**15.**	C	**24.**	6
7.	D	**16.**	B	**25.**	6
8.	D	**17.**	D		
9.	C	**18.**	B		

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