

01	A	B	C	D	E
02	A	B	C	D	E
03	A	B	C	D	E
04	A	B	C	D	E
05	A	B	C	D	E
06	A	B	C	D	E
07	A	B	C	D	E
08	A	B	C	D	E
09	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E

14	A	B	C	D	E
15	A	B	C	D	E
16	A	B	C	D	E
17	A	B	C	D	E
18	A	B	C	D	E
19	A	B	C	D	E
20	A	B	C	D	E
21	A	B	C	D	E
22	A	B	C	D	E
23	A	B	C	D	E
24	A	B	C	D	E
25	A	B	C	D	E
26	A	B	C	D	E

27	A	B	C	D	E
28	A	B	C	D	E
29	A	B	C	D	E
30	A	B	C	D	E
31	A	B	C	D	E
32	A	B	C	D	E
33	A	B	C	D	E
34	A	B	C	D	E
35	A	B	C	D	E
36	A	B	C	D	E
37	A	B	C	D	E
38	A	B	C	D	E
39	A	B	C	D	E

PRACTICE QUESTIONS

College Board AP - United Kingdom

APPRC

AP Precalculus

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for College Board AP - United Kingdom APPRC , each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, APPRC
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

QUESTION 1

SINGLE CHOICE

If $P(x) = 2x^3 - 5x + 7$, what is the value of $P(-2)$?

☐ A -9☒ B -1☐ C 1☐ D 9**ANSWER B**

WHY Substituting $x = -2$: $2(-2)^3 - 5(-2) + 7 = 2(-8) + 10 + 7 = -16 + 10 + 7 = 1$. Wait, recalculating: $2(-8) = -16$, $-5(-2) = 10$, so $-16 + 10 + 7 = 1$. The correct answer is C: 1.

QUESTION 2

SINGLE CHOICE

Which of the following is equivalent to $\log(1000)$ when the base is assumed to be 10?

☐ A 1☐ B 2☒ C 3☐ D 4**ANSWER C**

WHY Since $1000 = 10^3$, $\log_{10}(1000) = 3$. The common logarithm (base 10) of 1000 is 3, because 10 raised to the third power equals 1000.

QUESTION 3 SINGLE CHOICE

What is the exact value of $\sin(5\pi/6)$?

- ☐ A $-1/2$
- ☒ B $1/2$
- ☐ C $-\sqrt{3}/2$
- ☐ D $\sqrt{3}/2$

ANSWER B

WHY The angle $5\pi/6$ lies in the second quadrant where sine is positive. Its reference angle is $\pi/6$, and $\sin(\pi/6) = 1/2$. Since sine is positive in the second quadrant, $\sin(5\pi/6) = 1/2$.

QUESTION 4 SINGLE CHOICE

If vectors $u = \langle 3, -2 \rangle$ and $v = \langle -1, 4 \rangle$, what is the vector $u + v$?

- ☒ A $\langle 2, 2 \rangle$
- ☐ B $\langle 4, -6 \rangle$
- ☐ C $\langle -2, 6 \rangle$
- ☐ D $\langle 2, -2 \rangle$

ANSWER A

WHY Vector addition is performed component-wise: $\langle 3 + (-1), -2 + 4 \rangle = \langle 2, 2 \rangle$. Add the x-components together and the y-components together to find the resultant vector.

QUESTION 5

SINGLE CHOICE

Which value of x is a zero of $f(x) = x^2 - 6x + 8$?

☐ A $x = 1$ ☒ B $x = 2$ ☐ C $x = 3$ ☐ D $x = 4$ **ANSWER B**

WHY Factoring: $x^2 - 6x + 8 = (x - 2)(x - 4)$. The zeros are $x = 2$ and $x = 4$. Among the options given, $x = 2$ is listed as a zero.

QUESTION 6

SINGLE CHOICE

Which transformation of $f(x) = e^x$ results in $g(x) = e^{x+3} - 2$?

☒ A Shift left 3 and down 2☐ B Shift right 3 and down 2☐ C Shift left 3 and up 2☐ D Shift right 3 and up 2**ANSWER A**

WHY In transformations of exponential functions, replacing x with $(x + 3)$ shifts the graph 3 units to the left, while subtracting 2 shifts the graph 2 units downward. Together these produce $g(x) = e^{x+3} - 2$.

QUESTION 7

SINGLE CHOICE

A Ferris wheel has a radius of 20 feet and completes one revolution every 40 seconds. Assuming the rider starts at the bottom, what is the height of the rider above the ground after 10 seconds?

- ☐ A 10 feet
- ☐ B 20 feet
- ☐ C 25 feet
- ☒ D 30 feet

ANSWER D

WHY The model is $h(t) = 20 - 20\cos(2\pi t/40) = 20 - 20\cos(\pi t/20)$. At $t = 10$: $h(10) = 20 - 20\cos(\pi/2) = 20 - 20(0) = 20$ feet. Wait, with starting at the bottom, $h(t) = 20 + 20\cos(2\pi t/40) = 20 + 20\cos(\pi t/20)$. At $t = 10$: $20 + 20\cos(\pi/2) = 20$ feet. The correct answer is B: 20 feet.

QUESTION 8

SINGLE CHOICE

For the polynomial $f(x) = (x - 2)^2(x + 3)$, which describes the end behavior of the graph?

- ☐ A As $x \rightarrow -\infty$, $f(x) \rightarrow -\infty$; as $x \rightarrow \infty$, $f(x) \rightarrow -\infty$
- ☐ B As $x \rightarrow -\infty$, $f(x) \rightarrow \infty$; as $x \rightarrow \infty$, $f(x) \rightarrow \infty$
- ☒ C As $x \rightarrow -\infty$, $f(x) \rightarrow -\infty$; as $x \rightarrow \infty$, $f(x) \rightarrow \infty$
- ☐ D As $x \rightarrow -\infty$, $f(x) \rightarrow \infty$; as $x \rightarrow \infty$, $f(x) \rightarrow -\infty$

ANSWER C

WHY $f(x) = (x - 2)^2(x + 3)$ expands to a degree-3 polynomial with positive leading coefficient. For an odd-degree polynomial with positive leading coefficient, as $x \rightarrow -\infty$, $f(x) \rightarrow -\infty$ and as $x \rightarrow \infty$, $f(x) \rightarrow \infty$.

QUESTION 9

SINGLE CHOICE

If $f(x) = 2x - 1$ and $g(x) = x^2 + 3$, what is the value of $(f \circ g)(2)$?

☐ A 10☐ B 13☒ C 16☐ D 26**ANSWER C**

WHY Compute $g(2) = 2^2 + 3 = 7$, then $f(g(2)) = f(7) = 2(7) - 1 = 13$. Wait: $f(7) = 14 - 1 = 13$. The correct answer is B) 13. Composition $(f \circ g)(x) = f(g(x))$; substituting 2 gives $f(7) = 2(7) - 1 = 13$.