

Mock NBT MAT Paper 1 Memo

Practice 20 NBT-type multiple-choice questions compiled by Euler Education below.

PLEASE NOTE: These questions are “easy” relative to how the actual NBTs are, but they give you some perspective on how the questions are typically asked. You need to practice more difficult questions to do well in the NBT. Enroll in our NBT course to get access to up to 1,500+ Challenging and more comprehensive NBT type questions [here](#)

1. What is the remainder when $3x^3 - 5x^2 - 7x + 20$ is divided by $x^2 - 2x - 3$?

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|--------------|-------------|-------------|--------------|
| A) $4x + 23$ | B) $2x + 3$ | C) $3x - 2$ | D) $23x + 1$ |
|--------------|-------------|-------------|--------------|

2. What is the value of $\sin^2(x) + \cos^2(x)$ equal to?

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|------|------|------------------|---------|
| A) 0 | B) 1 | C) $\frac{1}{2}$ | D) -1 |
|------|------|------------------|---------|

3. What is $a^n - a^{(n-1)}$ equal to?

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|--------------|--------------|-------------|-----------------------|
| A) a^{n+1} | B) a^{n-1} | C) a^{2n} | D) $a^{(n-1)}(a - 1)$ |
|--------------|--------------|-------------|-----------------------|

4. If the sum of the first n terms of an arithmetic series is $n(3n + 5)$, what is the tenth term of the series?

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|-------------|-------|----------|-------|
| A) $3n + 5$ | B) 30 | C) $30n$ | D) 62 |
|-------------|-------|----------|-------|

5. Simplify $((kl)^{-1})((k^{-1} + l^{-1})^{-1})$.

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|--------------------|-------------------|------------------|------------------|
| A) $\frac{1}{k+1}$ | B) $\frac{1}{kl}$ | C) $\frac{l}{k}$ | D) $\frac{k}{l}$ |
|--------------------|-------------------|------------------|------------------|

6. What is $\cos(75) \cdot \sin(60) + \cos(15) \cdot \sin(30)$ equal to?

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|------|------|---------------|-------------------------|
| A) 1 | B) 3 | C) $\sqrt{2}$ | D) $\frac{\sqrt{2}}{2}$ |
|------|------|---------------|-------------------------|

7. Evaluate $3^4 + 5 \times 2 - 7$.

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|--------|-------|-------|-------|
| A) 106 | B) 84 | C) 33 | D) 91 |
|--------|-------|-------|-------|

8. An isosceles triangle has an area of 15 cm^2 and a base of 6 cm. If the height is 6 cm, what is the perimeter of the triangle?

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|--------------------|----------------|--------------------|--------------------|
| A) $6 + 6\sqrt{5}$ | B) $5\sqrt{5}$ | C) $6 + 5\sqrt{3}$ | D) $6 + 3\sqrt{5}$ |
|--------------------|----------------|--------------------|--------------------|

9. If $g(x)$ is a quadratic function such that $g(1) = 3$, $g(2) = 9$, and $g(0) = -1$, determine $g(4)$:

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|-------|-------|-------|-------|
| A) 36 | B) 27 | C) 32 | D) 24 |
|-------|-------|-------|-------|

10. Iman and Emily each throw coins. What is the probability that Emily more heads than Iman?

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|------------------|-------------------|------------------|------------------|
| A) $\frac{1}{6}$ | B) $\frac{5}{12}$ | C) $\frac{1}{3}$ | D) $\frac{1}{4}$ |
|------------------|-------------------|------------------|------------------|

11. Consider the triangle with vertices $A(2 ; 4)$, $B(6 ; 1)$, and $C(3 ; 1)$. What is the area of triangle ABC?

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|------------------------|--------------------------|------------------------|-------------------------|
| A) 7 units^2 | B) 4.5 units^2 | C) 9 units^2 | D) 10 units^2 |
|------------------------|--------------------------|------------------------|-------------------------|

12. If the area of a circle is doubled, what is the difference in length between the old and the new circumference in terms of the old radius?

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|--|---------------------------------------|--|---------------------------------------|
| A) $2\sqrt{2}\pi r_{\text{old}}(\sqrt{2} - 1)$ | B) $\pi r_{\text{old}}(\sqrt{2} - 1)$ | C) $2\pi r_{\text{old}}(\sqrt{2} - 1)$ | D) $2r_{\text{old}}(\sqrt{2}\pi - 1)$ |
|--|---------------------------------------|--|---------------------------------------|

13. If $x + y = 10$ and $x^3 + y^3 = 1170$, then the value of xy is:

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|--------------------|-------------------|--------------------|------------------|
| A) $-\frac{23}{3}$ | B) $\frac{3}{28}$ | C) $-\frac{17}{3}$ | D) $\frac{3}{8}$ |
|--------------------|-------------------|--------------------|------------------|

14. If $\frac{4}{3x^2 - 6x + 4} = 4$, then the value of $\frac{1}{x^2 + 8x + 9}$ equals:

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|-------------------|-------------------|-------------------|-------------------|
| A) $\frac{1}{24}$ | B) $\frac{1}{15}$ | C) $\frac{1}{12}$ | D) $\frac{1}{18}$ |
|-------------------|-------------------|-------------------|-------------------|

15. If $\sin(B) + 2\csc(B) = 3$, then $\cos(B)$ is equal to:

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|-------------------|------|------------------|-------|
| A) $-\frac{4}{3}$ | B) 0 | C) $\frac{1}{2}$ | D) -2 |
|-------------------|------|------------------|-------|

16. What is $\log_2(64) - \log_5(125)$ equal to?

A) 3

B) 4

C) 5

D) 6

17. The perimeter of a regular hexagon is equal to the circumference of a circle. What is the ratio of the area of the hexagon to the area of the circle?

A) $\frac{\pi\sqrt{3}}{4} : \frac{9}{\pi}$

B) $\frac{\pi\sqrt{6}}{4} : \frac{3}{\pi}$

C) $\frac{\sqrt{3}}{2} : \frac{3}{\pi}$

D) $\frac{\sqrt{3}}{4} : \frac{9}{\pi}$

18. If $\sin 45^\circ = m$, then the value of $\sin 135^\circ$ equals to:

A) $\sqrt{2}m$

B) m

C) $\sqrt{2} - m$

D) $m + \sqrt{2}$

19. Jeff Bezos, for some peculiar reason, purchases m amount of apples. He turns $t\%$ of them into apple sauce. How many apples are left?

A) $\frac{100m-t}{100}$

B) $\frac{100m-mt}{100}$

C) $\frac{m-100mt}{100}$

D) $\frac{mt-100mt}{100m}$

20. A Lamborghini Huracán car is traveling on a straight road at 180 km/h. Calculate the distance traveled by the car in 15 seconds.

A) 500 m

B) 750 m

C) 800 m

D) 900 m

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