1. Solve $|x - 2| < 3$. The solution is $-1 < x < ?$ What is the upper bound?

   _____

2. Evaluate $\log_2(8)$.

   _____

3. The secant function $\sec\theta$ is equal to:

   ☐ $1 / \sin\theta$

   ☐ $1 / \tan\theta$

   ☐ $1 / \cos\theta$

   ☐ $\cos\theta / \sin\theta$

4. The derivative of $\ln x$ is $1/x$. What is its value at $x = 4$?

   _____

5. What is $\int e^x\,dx$?

   ☐ $e^x + C$

   ☐ $e^{x+1} + C$

   ☐ $\ln x + C$

   ☐ $x\,e^x + C$

6. If f(a) and f(b) have opposite signs (and f is continuous between them), then between a and b there is:

   ☐ no root

   ☐ at least one root

   ☐ a maximum only

   ☐ always exactly two roots

7. By the remainder theorem, what is the remainder when $p(x) = x^2 + 3x + 2$ is divided by $(x - 1)$?

   _____

8. What is $\ln(e^5)$?

   _____

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☐ True ☐ False

10. The product rule says $(uv)'$ equals:

    ☐ $uv' - u'v$

    ☐ $u'v - uv'$

    ☐ $u'v'$

    ☐ $u'v + uv'$

1. **5**

   $|x - 2| < 3$ means $2 - 3 < x < 2 + 3$, i.e. $-1 < x < 5$.

2. **3**

   $2^3 = 8$, so $\log_2(8) = 3$.

3. **$1 / \cos\theta$**

   $\sec\theta = 1/\cos\theta$; $\csc\theta = 1/\sin\theta$; $\cot\theta = 1/\tan\theta$.

4. **0.25**

   $d/dx(\ln x) = 1/x = 1/4 = 0.25$.

5. **$e^x + C$**

   e^x is its own integral (and derivative): $\int e^x\,dx = e^x + C$.

6. **at least one root**

   A sign change of a continuous function guarantees a root between a and b.

7. **6**

   Remainder $= p(1) = 1 + 3 + 2 = 6$.

8. **5**

   ln and e are inverses, so $\ln(e^5) = 5$.

9. **False**

   The correct identity is $\sec^2\theta \equiv 1 + \tan^2\theta$ (plus, not minus).

10. **$u'v + uv'$**

    The product rule: $(uv)' = u'v + uv'$.

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