1. **Question Details**

Find the equation for the line tangent to the curve \( y = -3 + x^3 \) at \( x = 2 \). Give your answer in slope-intercept form.

\[
y = -3 + x^3
\]

2. **Question Details**

Find the exact value of:

(a) \( \arctan \left( -\sqrt{3} \right) \)

(Enter your answer in radians.)

3. **Question Details**

Solve for \( z \):

\[
\frac{2z + 3}{z} = 4.
\]

\( z = \)

4. **Question Details**

Rewrite by completing the square:

\[
y^2 + 10y + 21 = \]

5. **Question Details**

Find the exact value of:

\[
\cos \left( -\frac{\pi}{2} \right) = \]
6. Simplify as far as you can:

\[ \ln(9x^3) - \ln(9x^2) \]

7. Which graph shows the function \( y = f(x) = -\ln(x) \)?
8. **Question Details**

Solve for $q$:

$$\log_{10} (q+2) = 1.$$  

$q = \phantom{0}$


9. **Question Details**

If $f(s) = -2s^4 + 2s^2 + 8s + 3$,
then find the derivative

$f'(s) = \phantom{0}$


10. **Question Details**

If $f(s) = 3\sin(s)$,
then find the derivative

$f'(s) = \phantom{0}$


11. **Question Details**

If $y = 5e^{4x}$,
then find the derivative

$$\frac{dy}{dx} = \phantom{0}$$


12. **Question Details**

If $y = \ln \left( x^6 \right)$,
then find the derivative

$$\frac{dy}{dx} = \phantom{0}$$


13. **Question Details**

Find the derivative of $f(x) = \sqrt{x} \left( 3 + e^x \right)$.

$f'(x) = \phantom{0}$


14. **Question Details**

Find the derivative of $f(x) = \frac{3-1x}{\sin x}$

$f'(x) = \phantom{0}$
15. Question Details
Find the derivative of \( f(x) = \frac{x^3}{\cos(x)} \).
\[ f'(x) = \]

16. Question Details
Find a function \( f(t) \) whose derivative is:
\[ f'(t) = \sqrt{t} + 2t^2 \cdot \]
\[ f(t) = \]

17. Question Details
Evaluate the indefinite integral:
\[ \int \sin(4x+3) \, dx = \]

18. Question Details
Evaluate the indefinite integral:
\[ \int \frac{2 \cdot 3}{x^3 + 5} \, dx = \]

19. Question Details
Evaluate the definite integral:
\[ \int_3^7 x^2 + 2 \, dx = \]

20. Question Details
Evaluate the definite integral:
\[ \int_0^{\pi/3} \cos(2x) \, dx = \]