1. \( (z + 7z^2)^{\frac{1}{3}} \)

2. \( \alpha = x^2 e^x \)

3. \( y = 3\omega^2 \sin(\omega) \), where \( \omega \) is the independent variable

4. \( z = x \cos(x) + x^2 \tan(x) \)

5. \( B = 3\sigma^4 \ln(\sigma) + 17\sigma^2 \) \( \sigma \) is the independent variable

**Exponential functions**

6. \( t = t_0 e^{-x/X} \) (bottomset bed thickness)

**Power law**

7. \( d = d_0 + ax^{\frac{1}{2}} \) where \( d_0 \) is the depth to the ridge axis, \( a \) is a constant and \( x \) is distance away from the ridge axis. What is the slope of the sea surface 100 km from the ridge? Let \( a = 0.08 \) with units of km\(^{1/2}\).

Slope =

answer

What is the slope in degrees?

answer
9. The acceleration of gravity \((g)\) is defined by Newton’s universal law of gravitation as
\[
g = \frac{GM_E}{r^2}
\]
where \(G\) is a constant and \(M_E\) is also a constant. \(r\) represents distance from the center of the Earth. How does \(g\) change vary with changes in \(r\)?

10. In Stokes law we have
\[
v = \frac{2(\rho_p - \rho_f)g}{9 \eta} r^2
\]
How does the settling velocity change with a change in particle radius?

11. How does sediment age change with changes in depth if you define age versus depth as
\[
a = kz
\]

12. Using the relation between cliff height \((h)\) in terms of distance to the base of the cliff \((x)\) and angle \(\alpha\) subtended at \(x\) by the cliff given as \(h = x \tan(\alpha)\), how does \(h\) change with changes in \(\alpha\)?