Solutions to Mathematical Survey

Q1.

$$x = \frac{6}{8}$$

Q2.

$$x^{20}$$

Q3.

$$x^{7}$$

Q4.

False

Q5.

$$\frac{16}{7}$$

Q6.

$$\frac{37}{64}$$

Q7.

$$\frac{8}{\Delta y}$$

Q8.

$$t = \sqrt{\frac{v_0}{3}}$$

Q9.

$$v = \sqrt{G(M_1 + M_2)}$$

Q10.

$$3x^{-1} + 2x^{-1}y^3 - 9x^{-1}z^{-2}$$

Q11.

$$x = \frac{-6z \pm \sqrt{36z^2 - 20y^2 z}}{2y}$$

Q12. Multiply equation (1) by 2 and add it to equation (2) to eliminate y. Then solve for x,

$$x = \frac{1}{2}$$

Q13.

$$\frac{P_1}{P_2} = 6$$

Q14.

$$\frac{1}{2(z-1)} - \frac{1}{2(z+1)} = \frac{z+1}{2(z-1)(z+1)} - \frac{z-1}{2(z+1)(z-1)} = \frac{2}{2(z-1)(z+1)} = \frac{1}{(z-1)(z+1)}$$

Q15.

$$25x^2 + 30xy + 9y^2$$

Q16.

$$|x| = \frac{3}{2}$$

Q17.

False, the correct inverse of $\log_c(z) = k$ is $z = c^k$

Q18.

$$x \approx 3$$

Q19.

$$\frac{1}{3\log(x)} + \frac{1}{3} + \frac{\log(y)}{3\log(x)}$$

Q20.

$$\approx 1.176 \text{ rad}$$

Q21.

False

Q22.

$$-9\pi \leq 9\pi \sin(\theta) \leq 9\pi$$

Q23.

True

Q24.

True

Q25.

≈ 1.176 radians

Q26.

Both are False
