DAWSON COLLEGE

MATHEMATICS itQ1ASQ1ASQEitQTETBT1 0 0 1 30.04 4Tm[(MATHE)]

(e) (3 points) $5 \quad \frac{3}{3} \quad 1$

7. (4 points) An electrician charges, for each job, a fixed amount plus an amount per hour for labour. If a 3-

15. (9 points) Solve for x:

(a) (3 points) $\log_3 x \quad \log_3 2x \quad 1 \quad 0$

(b) (3 points) $6^{3x\ 1} \quad \frac{1}{36}^{\ x\ 2}$

(c) (3 points) $3 \qquad 5^{x}$

c) $x = 5/2$ or $x = 3$

b) $-12 < x < 6$

4.

10. a) $(3, 4)$ b) $y = x + 1$

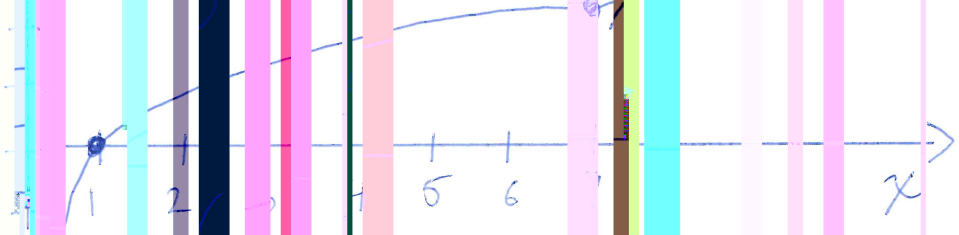
11. a) Domain $= (-\infty, \infty)$ | axis of symmetry $= x = -3$
Range $= [-4, \infty)$ | vertex $= (-3, -4)$

b) $(-2, -5)$ and $(-1, 0)$

12. a) 23 b) 29

13. a) $f^{-1}(x) = \frac{5x - 4}{2}$ b) 1

14. Domain $= (0, \infty)$ $y = \log_7(x) - 1$ $y - 1 = \log_7(x)$
Range $= (-\infty, \infty)$ $x = 7^{y-1}$



15. a) $x = 1/2$ or $x = 1$

b) $x = 3$

c) $x = \frac{\ln 45}{\ln 5}$ or $x = \frac{\log 45}{\log 5}$

16. a) $-\frac{6\sqrt{2}}{5\sqrt{3}}$

b) LHS $= \tan^2 x + \tan^2 x \cot^2 x$

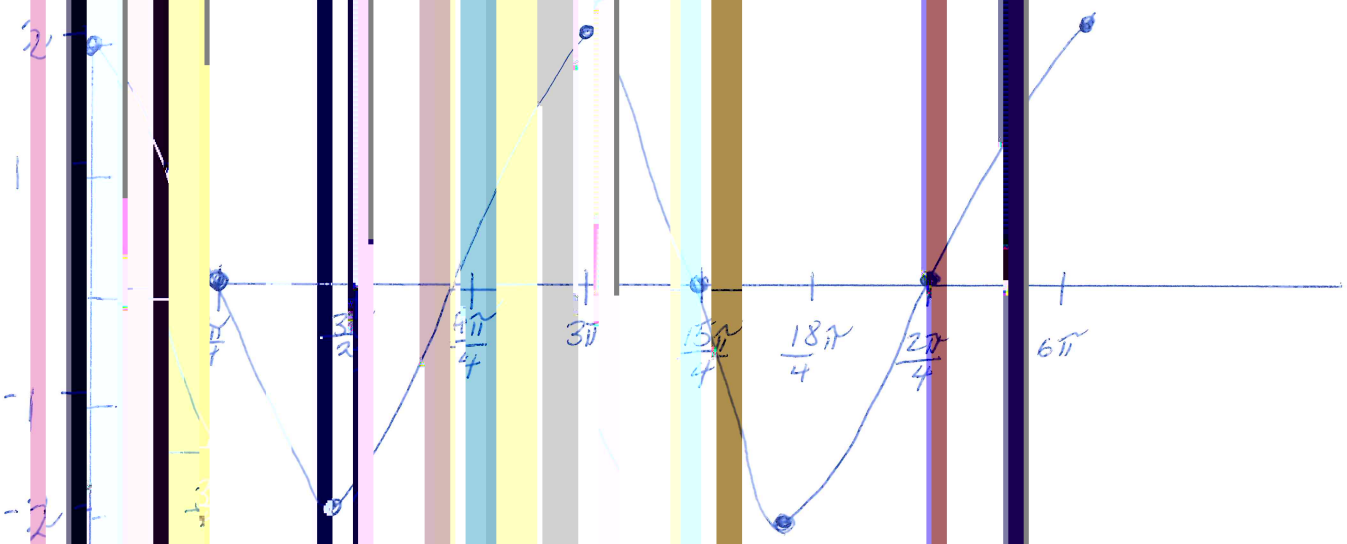
$= \underbrace{\tan^2 x + 1}_{\sec^2 x}$

$=$ RHS

c) $x = 0$ or π rad or $x = \frac{\pi}{3}$ or $\frac{2\pi}{3}$

d) $-\frac{\pi}{6}$

17.



18. 38 m^2

19. $H = 30 \dfrac{\tan 50}{\tan 20} + 30$

$H \approx 123.23 \text{ ft}$

20. $\dfrac{1}{\sqrt{3}} \quad \dfrac{1}{\sqrt{3}}$

21. $\dfrac{16\pi}{3} \approx 2109.4 \text{ cm}^3$