

## ANSWERS

1. a
2.  $\frac{2\pi}{3} + \frac{\pi}{3} = \pi$
3. [2 1]
4.  $\pm 2\sqrt{2}$
5.  $\frac{-1}{2}$
6. 3
7. 1, -7, 2
8.  $\frac{7^{4x}}{4\log_e 7} + c$
9. 1
10.  $\begin{pmatrix} 6 & 2 \\ 21 & -7 \end{pmatrix}$
11.  $\frac{3x+1}{2}$  Or  $\frac{x-3}{4}$
12.  $\frac{1}{6}$
13.  $\begin{pmatrix} 24 & 9 \\ 6 & 18 \end{pmatrix}$
14. (00), (12), (-1, -2)

15.  $\frac{y}{x}$  Or  $\frac{-x}{\sqrt{1-x^4}}$

16.  $\frac{1}{2\sqrt{2}} \log \left| \frac{x^2 + 1 - \sqrt{2}x}{x^2 + 1 + \sqrt{2}x} \right| + c$

17. 7.11cm/s

18.  $\frac{\pi}{12}$

19.  $\frac{1}{5} \log \left| \frac{\tan x - 2}{2 \tan x + 1} \right| + c$

20.  $\cos^{-1} \left( \frac{31}{7^{21}} \right)$

21.  $\left( \frac{13}{5}, \frac{23}{5}, 0 \right)$

22.  $\frac{117}{850}, \frac{11}{850}$  Or  $\frac{1}{9}$

23.  $x = 1, y = 2, z = 5$

24.  $\frac{112}{\pi + 4}$  cm

25.  $\left[ \pi - \frac{2\sqrt{3} + \sqrt{15}}{16} - 2 \sin^{-1} \left( \frac{1}{4} \right) \right]$  sq.units

26.  $y = \frac{1}{x} + \frac{10}{7x^2}$

27.  $a = 1, b = -1, c = 2$

28.  $1 - \left(\frac{1}{6}\right)^{12}$  or

x	0	1	2
P(x)	$\frac{12}{22}$	$\frac{9}{22}$	$\frac{1}{22}$

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

29.  $\frac{50}{3}$  km at 25 km/h and  $\frac{40}{3}$  km at 40km/h

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