Quiz 2 MA3521 Version 9

8. The solution of the differential equation $y' + y = x$ is

Select the correct answer.

Out[19]=

(a) $y = x - 1 + ce^{-x}$

(b) $y = x^2/2 + e^x$

(c) $y = x^2/2 + e^{-x}$

(d) $y = x - 1 + ce^x$

(e) $y = -x - 1 + ce^x$

10. An integrating factor for the linear differential equation $y' + y/x = x$ is

Select the correct answer.

Out[20]=

(a) $1/x$

(b) x

(c) $1/x^2$

(d) x^2

(e) e^{-x}

12. The differential equation $(-xy \sin x + 2y \cos x)dx + 2x \cos x dy = 0$ is

Select the correct answer.

Out[21]=

(a) exact with solution $-xy \cos x + y \sin x + 2xy \cos x = c$

(b) exact with solution $-xy \cos x + y \sin x + 2xy \cos x + c$

(c) exact with solution $-2xy \cos x + y \sin x + 2xy \cos x = c$

(d) not exact but having an integrating factor xy

(e) not exact but having an integrating factor y

18. The differential equation $y' = \sqrt{2x - y + 1} + 2$ has the solution
Select the correct answer.

Out[22]=

(a) $y = ((-x + c)/2)^2$
(b) $2x - y + 1 = ((-x + c)/2)^2$
(c) $y = 2(2x - y + 1)^{3/2}/3 + c$
(d) $y = 2(2x - y + 1)^{3/2}/3 - x + c$
(e) $2x + y = ((-x + c)/2)^2$

20. Solve the problem $y' = xy^2$, $y(1) = 1$ numerically for $y(1.2)$ using $h = 0.1$.
Select the correct answer.

Out[23]=

(a) 1.1
(b) 1.121
(c) 1.2331
(d) 1.23
(e) 1.221