MATHS

BOOKS - CENGAGE MATHS (ENGLISH)

CURVE TRACING

Illustrations

1. Draw the graph of $y = x - \sin x$

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2. Draw the graph of $y = 2\cos x + \sin 2x$

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3. Draw the graph of $y = \sin x \cos^2 x$

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4. Draw the graph of $f(x) = x\cos x - \sin x, x \in [-3\pi, 3\pi]$

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5. Draw the graph of the function $f(x) = x - \sqrt{x}$.

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6. Draw the graph of y=$\frac{x^2}{\sqrt{x+1}}$

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7. Draw the graph of $x^{2/3}y^{2/3} = 1$

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8. Draw the graph of $y = (x+1)^{2/3} + (x-1)^{2/3}$

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9. Draw the graph of $y = e^{x} + e^{-2x}$

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10. Draw the graph of $y = xe^x$. Find the range of the function. Also find the point of inflection.

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11. Draw the graph of $f(x) = x^2 e^{-|x|}$

i) Find the point of maxima/minima.

ii) Find the asymptote is any.

iii) Find the range of the function.

iv) Find the number of roots of the equation $f(x) = 1$

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12. Find the minimum integral value of k for which the equation $e^x = kx^2$ has exactly three real distinct solutions.

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13. Draw the graph of the function $f(x) = \left(\frac{1}{x}\right)^x$

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14. Draw the graph of the function $f(x) = \left(1 + \frac{1}{x}\right)^2$

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15. Discuss the number of roots of the equation $e(k - x\log x) = 1$ for different value of k.

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16. Draw the graph of $y = \log_e\left(x + \sqrt{x^2 + 1}\right)$

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17. Draw the graph of $f(x) = \ln(1 - \ln\ x)$.

Find the point of inflection.

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18. Draw the graph of the function $f(x) = 2x^2 - \log_e|x|$

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19. Draw the graph of $y = \log_e\left(x^3 - x\right)$

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20. Draw the graph of $f(x) = \sqrt{1 - e^{-x^2}}$

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21. Draw the graph of the relation $y^2 = x^2(1 - x)$

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22. Draw the graph of the relation $4y^2 = x^2(4 - x^2)$

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23. Draw the graph of the relation $(y - x)^2 = x^3$

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24. Draw the graph of $y = x^{3/5}$

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25. Draw the graph of $y = x^{2/5}$

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26. Draw and discuss the graph of $f(x) = x^{2/3} - x^{4/3}$

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27. Draw the graph of $f(x) = 12x^{\frac{4}{3}} - 6x^{\frac{1}{3}}$

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28. Draw the graph of the relation $y^2(x-1) = x^2(1+x)$

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29. Draw the graph of $y = \sqrt{\frac{1-x}{1+x}}$.

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Exercises

1. Draw the graph of $y = \sin^2 x - \cos x$

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2. Draw and discuss the graph of $f(x) = x + \sqrt{x - 1}$

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3. Draw the graph of $y = \sqrt{1 + x^2} - x$

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4. Draw the graph of $y = \left(\sqrt{x^2 + 1} - \sqrt{x^2 - 1}\right)$

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5. Draw the graph of $y = \dfrac{\sqrt{x}}{x - 1}$

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6. Draw the graph of the relation $y = |x|\sqrt{1 - x^2}$

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7. Draw the graph of $y = \sqrt{\frac{x - 1}{1 + x}}$

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8. Draw the graph of $\sqrt{|x|} + \sqrt{|y|} = 1$

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9. Draw the graph of $y = \frac{3\sqrt{x^2+1}}{x-1}$

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10. Draw and discuss the graph of the function

$f(x) = e^{1/x}$

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11. Draw the graph of $y = \frac{1}{\log_e x}$

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12. Draw the graph of $y = \frac{1}{\log_e x}$

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13. Draw the graph of $f(x) = e^{-x^2}$. Discuss the concavity of the graph.

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14. Draw the graph of $f(x) = \dfrac{e^x}{1+e^x}$. Also find the point of inflection.

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15. Draw the graph of the function $f(x) = x^x$

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16. Draw the graph of $y = x/\ln\ x$

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17. Draw the graph of $y = (\log_e x)^2$

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18. Draw the graph of $y = \log_e (x^2 - 1)$

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19. Draw and graph of $f(x) = \frac{4\log_e x}{x^2}$. Also find the range.

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20. Draw the graph of the relation $y^2 = x^5(2 - x)$

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21. Draw the graph of $f(x) = 2x + 3x^{2/3}$ and discuss the type of non-differentiability for the function. Also find the point of inflection.

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22. The function $f(x) = x^{\frac{1}{3}}(x - 1)$ has two inflection points has one point of extremum is non-differentiable has range $\left[-3x2^{-\frac{8}{3}}, \infty\right)$

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23. Draw the graph of $y = \frac{e^x - e^{-x}}{2}$.

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24. Draw the graph of $y = \log_e\left(x + \sqrt{x^2 + 1}\right)$

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