Mathematics 12 Level Challenge Exam For

MECH

Each question is followed by five possible answers labeled (a) through (e). Select the one best answer to each question.

Calculators are **not** permitted.

You should be able to complete this practice test in approximately 60 minutes. The real test contains 60 multiple choice questions with a time limit of 90 minutes.

1.   3 ↯ 3 6 7 Ⓒ

   a) -3   b) 0   c) 9   d) 15   e) 21

2.2.

2. $\dfrac{1}{u}$ $\dfrac{5}{v}$

   a) $\dfrac{4}{u \quad v}$ b) $\dfrac{4}{u \quad v}$

9. The x-coordinate of the solution of the system of equations $\begin{array}{l}-3x + 6y = 4 \\ -x + 3y = 1\end{array}$ is

a) $\dfrac{1}{15}$ b) $\dfrac{1}{3}$ c) 1   d) $\dfrac{6}{5}$ e) $\dfrac{5}{3}$

10. If $a = 4$ and $b = 3$, then $|a - b| =$

a) -7   b) -1   c) 1   d) 7   e) 12

11. $\dfrac{6m^2 - 3m}{3m} =$

a) $2m - 1$ b) $6m^2$ c) $3m$ d) $6m^2 - 1$ e) $5m$

12. The length L of a spring is given by $L = \dfrac{3}{4}F + 8$ where F is the applied force. What force F will produce a length of 10?

a) $\dfrac{8}{3}$ b) $\dfrac{16}{3}$ c) $\dfrac{32}{3}$ d) $\dfrac{31}{2}$ e) 24

13. $\left(\dfrac{3y}{x^4}\right)^{-3} =$

a) $\dfrac{27y^3}{x^{12}}$ b) $\dfrac{x^{12}}{27y^3}$ c) $\dfrac{x^{12}y^3}{27}$ d) $\dfrac{3y^3}{x^{12}}$ e) $27y^3x^{12}$

14. $\dfrac{x^2 - 9}{3x} \div \dfrac{12}{2x - 6} =$

a) 3   b) 6   c) $2x - 3$ d) $\dfrac{2x + 3}{x}$ e) $\dfrac{2x - 3}{x}$

15. If $\dfrac{1}{x - 3} + 7 = \dfrac{x}{x - 3}$, then $x =$

a) $\dfrac{10}{3}$ b) $\dfrac{1}{3}$ c) $\dfrac{1}{3}$ d) $\dfrac{10}{3}$ e) 8

16.

20. Definition: A function is odd if $f(-x) = -f(x)$ for each x in the domain of f. Which of the functions whose graphs are shown is odd?

a)   b)   c)

d)   e)

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21.   Which of the following best resembles the graph of $y = \dfrac{1}{2} + 3x - x^2$

a)   b)   c)   d)   e)

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22.   If $\log_4 x = 1 - 3$

24. If the point A has coordinates (4, 2) and the point C has coordinates (5, 14), then the distance from A to C in the xy-

32. If $f(x) = \dfrac{2x+6}{x+2}$, then $f(a+2) =$

a) $\dfrac{5}{2}$ b) $\dfrac{2a+8}{a+4}$ c) $\dfrac{2a+10}{a+4}$ d) $\dfrac{2a+6}{a+2}$ e) $\dfrac{2a+6}{ae1.6}$

ANSWER SHEET FOR
MATHEMATICS 12 PRACTICE EXAM (FOR MECH)

1. E	21. A
2. C	22. C
3. D	23. A
4. D	24. D
5. A	25. C
6. B	26. D
7. B	27. B
8. A	28. E
9. D	29. A
10. D	30. B
11. A	31. C
12. A	32. C
13. B	33. D
14. E	34. D
15. D	35. E
16. A	36. D
17. B	37. A
18. D	38. A
19. C	39. B
20. E	40. D