

GROUP I - NUMERICAL

1. Multiply 0.06 by 0.021
(a) 0.0126 (b) 0.0000126 (c) 0.00126 (d) 0.126 (e) None of these
2. Divide 4.2 by 0.07
(a) 1.333 (b) 60 (c) 6 (d) 600 (e) None of these
3. $9 - 3(2 + 6) \div 6 - 2 \times 5$
(a) -2 (b) 35 (c) 5 (d) -5 (e) None of these
4. The decimal equivalent of $\frac{9}{40}$ is:
(a) 4.44 (b) 2.25 (c) 0.225 (d) 0.0225 (e) None of these
5. Express 0.275 as a common fraction in lowest terms:
(a) $\frac{11}{40}$ (b) $\frac{11}{80}$ (c) $\frac{22}{80}$ (d) $\frac{11}{25}$ (e) None of these
6. Express $\frac{2}{5}$ as a percent:
(a) .4% (b) 20% (c) 4% (d) 2% (e) None of these
7. 60% of \$10.60
(a) \$1.63 (b) \$6.36 (c) \$63.60 (d) \$16.31 (e) None of these
8. 24 is what percent of 40?
(a) 60% (b) 3.75% (c) 6% (d) 37.5% (e) None of these
9. 0.85 is 25% of what sum?
(a) 3.4 (b) 34 (c) 21.25 (d) 2.125 (e) None of these

10. 36 is what percent of 30?
(a) 83.3% (b) 90% (c) 120% (d) 72% (e) None of these
11. 6 is 15% of what number?
(a) 90 (b) 0.9 (c) 2.5 (d) 40 (e) None of these
12. The population of Snowtown was 4500 in 1990. In 1994 it had decreased to 3600. Find the percent decrease in population during those four years.
(a) 80% (b) 90% (c) 16.2% (d) 20% (e) None of these
13. You receive a grade of 75 % on a test of 60 questions. How many questions did you answer correctly?
(a) 45 (b) 8 (c) 12 (d) 50 (e) None of these
14. Sandra's monthly salary is \$3200. If deductions for taxes from her monthly paycheck is \$800, what percent of her salary goes to these deductions?
(a) 25% (b) 25.6% (c) 40% (d) 4% (e) None of these
15. The cost of an article including 15% for taxes is \$138.00. What is the cost of the article without taxes?
(a) \$120.00 (b) \$117.30 (c) \$20.70 (d) \$92.00 (e) None of these
16. The average of the following group of numbers 43, 29, 51, 36, 33, 42, 32 is
(a) 36 (b) 33 (c) 38 (d) 43 (e) None of these
17. Brian had marks of 80, 94, 70, 68 and 83 on five tests. His average score is between
(a) 65 and 70 (b) 70 and 75 (c) 75 and 80 (d) 80 and 85 (e) None of these

18. 6.42×10^4 is equivalent to:
(a) 64,200 (b) 642 (c) 0.000642 (d) 642,000 (e) None of these
19. $\frac{1}{4} + \frac{5}{8} + \frac{7}{10} =$
(a) $\frac{14}{18}$ (b) $\frac{13}{22}$ (c) 1.325 (d) 1.575 (e) None of these
20. $3\frac{1}{2} + 4\frac{3}{4} + 5\frac{3}{10} =$
(a) $12\frac{7}{16}$ (b) $13\frac{11}{20}$ (c) $\frac{16}{33}$ (d) $12\frac{9}{80}$ (e) None of these
21. $7\frac{1}{8} - 3\frac{1}{6} =$
(a) $4\frac{1}{48}$ (b) $4\frac{1}{2}$ (c) $3\frac{23}{24}$ (d) $3\frac{0}{2}$ (e) None of these
22. $7 - 4\frac{2}{5} = ?$
(a) $3\frac{3}{5}$ (b) $-2\frac{3}{5}$ (c) $-3\frac{3}{5}$ (d) $2\frac{3}{5}$ (e) None of these
23. $31.7 + 6 + 2.81 + 0.254$
(a) 35.264 (b) 858 (c) 14.52 (d) 40.764 (e) None of these
24. Subtract 5.485 from 12
(a) - 17.485 (b) 17.485 (c) -6.515 (d) 6.515 (e) None of these
25. Dividing by 10 000 is the same as multiplying by
(a) 0.01 (b) $\frac{1}{10000}$ (c) $\frac{1}{1000}$ (d) 0.001 (e) None of these

26. Ginny baked a delicious apple pie. John ate $\frac{1}{4}$ of it. Then Aldo ate $\frac{1}{2}$ of what was left. How much pie was left after Aldo ate his piece?

- (a) $\frac{1}{4}$ (b) $\frac{1}{8}$ (c) $\frac{1}{2}$ (d) $\frac{3}{8}$ (e) None of these

27. It takes a bus $3\frac{1}{4}$ hours to travel from Toronto to Parry Sound. If the bus averages 88 km/hr. How far is it from Toronto to Parry Sound.

- (a) 286,000 m (b) 2.86 km (c) 27 km (d) 286 cm (e) None of these

28. Find the missing term: $\frac{4}{7} = \frac{28}{?}$

- (a) 49 (b) 16 (c) 56 (d) 42 (e) None of these

29. If $\frac{a}{10} = 0.57$, a is equal to

- (a) 57 (b) .057 (c) $5\frac{7}{10}$ (d) 0.057 (e) None of these

30. Express the following product in lowest terms:

$$3\frac{1}{4} \times \frac{1}{7} \times 8$$

- (a) $3\frac{3}{7}$ (b) $\frac{24}{28}$ (c) $\frac{13}{7}$ (d) $\frac{6}{7}$ (e) None of these

31. Simplify $\frac{2-\frac{1}{4}}{3-\frac{1}{5}}$, giving your answer in lowest terms.

- (a) $\frac{7}{5}$ (b) $\frac{5}{8}$ (c) $\frac{8}{5}$ (d) $\frac{45}{64}$ (e) None of these

32. Simplify: $\sqrt{10^2 - 6^2}$

- (a) 8 (b) $\sqrt{136}$ (c) 64 (d) 2 (e) None of these

33. The value of $-3(-4)^2$ is:
(a) 48 (b) 49 (c) -48 (d) 144 (e) None of these
34. $4 + 2[6 - (-5)3] =$
(a) -14 (b) -54 (c) 126 (d) 46 (e) None of these
35. $\frac{10^3}{10^{-2}} =$
(a) 10 (b) 10^{-4} (c) 10^{-1} (d) 10^{-5} (e) None of these
36. How many fifths are there in 4.8
(a) 24 (b) 0.96 (c) 1.04 (d) 9.6 (e) None of these
37. $22r - 15s - 3r + 3s =$
(a) 15rs (b) $22r - 15s$ (c) 7rs (d) $19r - 12s$ (e) None of these
38. $\frac{a^6}{a^2} =$
(a) a^4 (b) a^3 (c) a^8 (d) a^{-8} (e) None of these
39. $(3xy^2)^3 =$
(a) $3x^3y^6$ (b) xy (c) $27x^3y^6$ (d) $9x^2y^6$ (e) None of these
40. $\frac{1}{\frac{1}{a} + \frac{1}{b}} =$
(a) $\frac{a+b}{ab}$ (b) $\frac{ab}{a+b}$ (c) $a^2 + b^2$ (d) $a^2 - b^2$ (e) None of these
41. $\frac{a}{a+a^2} =$
(a) $\frac{a}{a^3}$ (b) $\frac{1}{a^2}$ (c) $\frac{1}{2a}$ (d) $\frac{1}{1+a}$ (e) None of these

GROUP II - ALGEBRAIC EXPRESSIONS

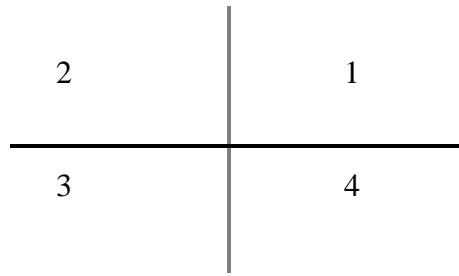
42. Find the value of $y - 6y^2$, when $y = \frac{1}{3}$
- (a) $-\frac{2}{3}$ (b) $-\frac{1}{3}$ (c) 1 (d) $-4\frac{2}{3}$ (e) None of these
43. When $M = -2$ and $P = 4$, find the value of $\frac{3P - M}{3MP}$
- (a) 0 (b) $\frac{-7}{12}$ (c) $\frac{-5}{12}$ (d) $\frac{-3}{4}$ (e) None of these
44. Express $y - 4[y - 3(y - 2)] - 5$ in simplest form
- (a) $19 + 9y$ (b) $-7y - 29$ (c) $-2y^2 + 14y - 29$ (d) $9y - 29$ (e) None of these
45. The expanded form of $(3r - 4)^2$ is:
- (a) $9r^2 - 12r + 16$ (b) $9r^2 - 24r - 16$ (c) $9r^2 + 16$ (d) $9r^2 - 16$ (e) None of these
46. Combine fractions and reduce $\frac{5b}{4a} + \frac{b}{3a} - \frac{3b}{a}$
- (a) $\frac{3b}{8a}$ (b) $\frac{17b}{12a}$ (c) $-\frac{17ab}{12a^2}$ (d) $-\frac{17b}{12a}$ (e) None of these
47. Combine fraction $\frac{2m}{t} + \frac{5}{mt}$
- (a) $\frac{7}{t}$ (b) $\frac{2m^2 + 5}{mt}$ (c) $2m^2 t + 5t$ (d) $\frac{2m - 5t}{t + mt}$ (e) None of these

GROUP III - ALGEBRAIC EQUATIONS

48. If $T = \frac{1}{3} r m^2$, then $r =$
- (a) $\frac{m^2}{3T}$ (b) $\frac{3\sqrt{T}}{m}$ (c) $3T - m^2$ (d) $\frac{T}{3m^2}$ (e) None of these

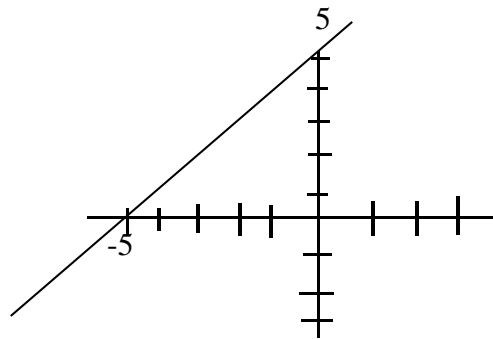
49. Solve for b: $3b = 5(2 - b) - 4(1 - 3b)$
- (a) $-\frac{3}{2}$ (b) $\frac{6}{7}$ (c) $\frac{3}{2}$ (d) $\frac{3}{10}$ (e) None of these
50. $8x - 3 = 4x - 15$, $x =$
- (a) -3 (b) 3 (c) 1.5 (d) -1.5 (e) None of these
51. If $bx = c - x$, $x =$
- (a) $b - c$ (b) $\frac{c}{b+1}$ (c) $\frac{b+1}{c}$ (d) $c - b$ (e) None of these
52. Which is equal to $x^2 - 2x - 3$
- (a) $(x - 3)(x + 1)$ (b) $(x + 3)(x - 1)$ (c) $(x - 3)(x - 1)$ (d) $(x + 3)(x + 1)$
(e) None of these
53. $(3 - y)(3 + y) =$
- (a) $9 - y^2$ (b) $9 + y^2$ (c) $9 + 6y + y^2$ (d) $9 - 6y + y^2$
(e) None of these
54. $\frac{a^2}{16} - \frac{1}{9} =$
- (a) $\left(\frac{a-1}{4}\right)\left(\frac{a+1}{9}\right)$ (b) $\frac{a^2 - 1}{7}$ (c) $\left(\frac{a}{4} - \frac{1}{3}\right)\left(\frac{a}{4} + \frac{1}{3}\right)$ (d) $\frac{a^2 - 1}{1}$
(e) None of these
55. $x = |-4 - 5|$
- (a) -9 (b) 9 (c) 1 (d) -1 (e) None of these
56. $y = |-3 - (-4)|$
- (a) -1 (b) -7 (c) 1 (d) 7 (e) None of these
57. $z = |-3| - |-4|$
- (a) -1 (b) 1 (c) -7 (d) 7 (e) None of these

58. What numbered region does the point (18, -36) fit into:



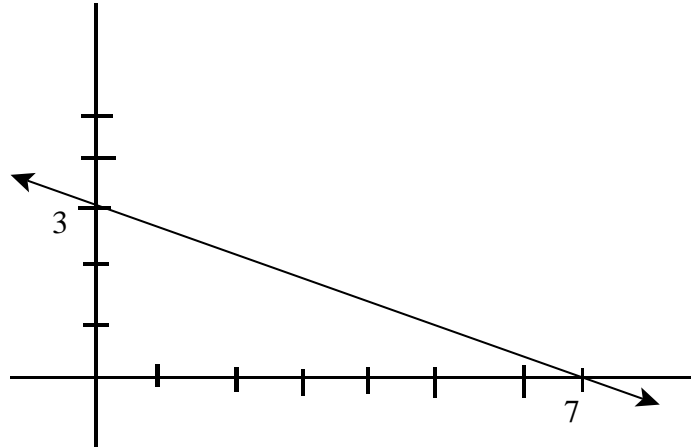
- (a) 1 (b) 2 (c) 3 (d) 4 (e) None of these

59. The following drawing represents:



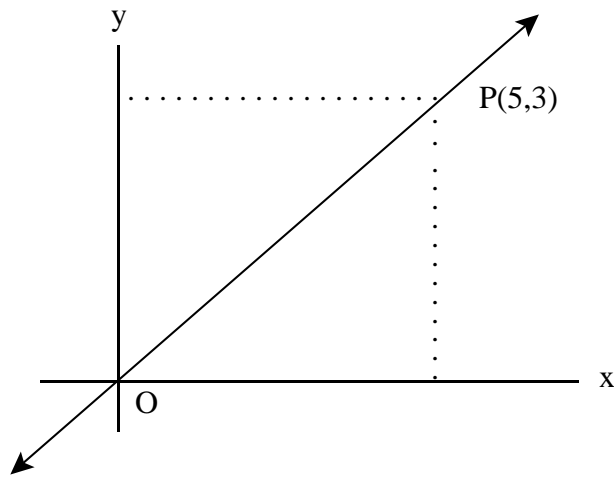
- (a) $x - y + 5 = 0$ (b) $x + y + 5 = 0$ (c) $x + y - 5 = 0$ (d) $x = y$ (e) None of these

60. Find the slope of the line shown:



- (a) $\frac{3}{7}$ (b) $-\frac{3}{7}$ (c) $-\frac{7}{3}$ (d) $\frac{7}{3}$ (e) None of these

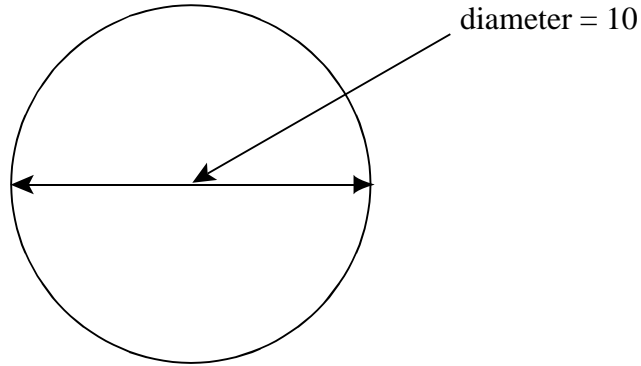
61. The equation of the line, OP shown in the diagram is



- (a) $3y - 5x = 0$ (b) $5x + 3y = 0$ (c) $x + y = 8$ (d) $5y - 3x = 0$ (e) None of these

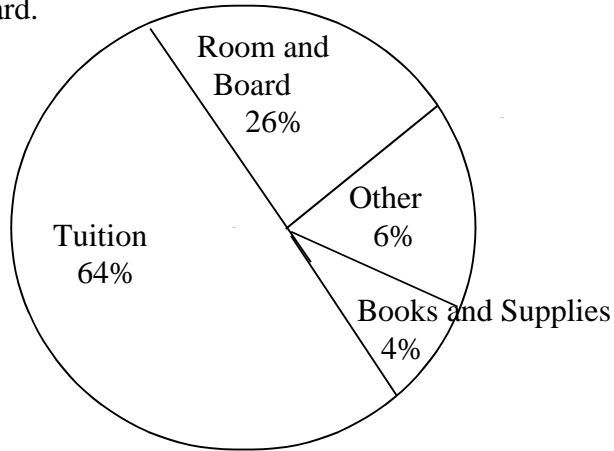
GROUP V - MENSURATION

62. Find the circumference of the circle shown:



- (a) 10π (b) 25π (c) 100π (d) 5π (e) None of these

63. If a student's total budget was \$15,000. How much more money was allocated to tuition than room and board.



- (a) \$9,600 (b) \$3,900 (c) \$5,700 (d) \$8,100 (e) None of these

GROUP VII - WORD PROBLEMS

64. How many 4cm by 4 cm tiles are needed to cover an area which measures 20cm by 28cm.

- (a) 48 (b) 35 (c) 140 (d) 560 (e) None of these

65. A piece of wire, 536cm long is cut into two parts such that the longer part is 3 times as long as the shorter part. What are the lengths, in cm, of the two parts?

- (a) 134cm and 402cm (b) 144cm and 392cm (c) 128cm and 408cm
(d) 124cm and 412cm (e) None of these

ANSWERS

- | | | |
|-------|-------|-------|
| 1. c | 23. d | 45. e |
| 2. b | 24. d | 46. d |
| 3. d | 25. b | 47. b |
| 4. c | 26. d | 48. e |
| 5. a | 27. a | 49. a |
| 6. e | 28. a | 50. a |
| 7. b | 29. c | 51. b |
| 8. a | 30. e | 52. a |
| 9. a | 31. b | 53. a |
| 10. c | 32. a | 54. c |
| 11. d | 33. c | 55. b |
| 12. d | 34. d | 56. c |
| 13. a | 35. e | 57. a |
| 14. a | 36. a | 58. d |
| 15. a | 37. d | 59. a |
| 16. c | 38. a | 60. b |
| 17. c | 39. c | 61. d |
| 18. a | 40. b | 62. a |
| 19. d | 41. d | 63. c |
| 20. b | 42. b | 64. b |
| 21. c | 43. b | 65. a |
| 22. d | 44. d | |