

PRACTICE EXAMPLES

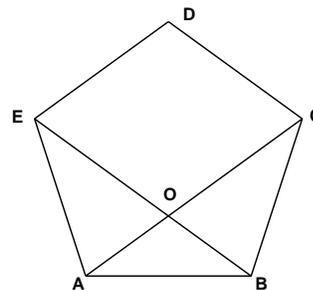
1. If $3x - 15 = 0$, then x is equal to
(A) 2 (B) 3 (C) 4 (D) 5 (E) 6
2. The circumference of a circle with radius 2 is
(A) π (B) 2π (C) 4π (D) 6π (E) 8π
3. The sum of the smallest and the largest of the numbers 0.5129; 0.9; 0.89; and 0.289 is
(A) 1.189
(B) 0.8019
(C) 1.428
(D) 1.179
(E) 1.4129

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1. An approximate value for $\frac{302.476 \times 0.040328}{5.96247}$ is
(A) 2 (B) 10 (C) 200 (D) 20 000 (E) 1 000 000
2. Rectangle $ABCD$ has sides AB and BC in the ratio 3 : 1. If the diagonal AC is 5, then the area of the rectangle is
(A) 9 (B) $\frac{15}{2}$ (C) 8 (D) 10 (E) $\frac{20}{3}$
3. If $x^2 = x + 3$, then x^3 equals
(A) $x^2 + 9$ (B) $x^2 + 3x + 3$ (C) $4x + 3$ (D) $x + 3$ (E) $x^2 + 3$
4. $2006^2 - 2007 \times 2005 + 2008 \times 2004 - 2009 \times 2003$ equals
(A) -2 (B) 2 (C) 6 (D) 2000 (E) 2006
5. The next number in the pattern 2; 3; 6; 15; 42; ... is
(A) 111 (B) 123 (C) 135 (D) 148 (E) 162
6. The last (units) digit of the number 333^{444} is
(A) 1 (B) 5 (C) 3 (D) 7 (E) 9
7. If $\frac{2x - 3y}{x + 2y} = 3$, then the numerical value of $\frac{2x + y}{3x + 10y}$ is
(A) $\frac{19}{28}$ (B) $\frac{1}{2}$ (C) $\frac{2}{3}$ (D) $\frac{7}{9}$ (E) 1
8. $4^{n+1} + 4^{n+2}$ equals
(A) 8^{2n+3} (B) 4^{2n+3} (C) $5 \times 2^{2n+2}$ (D) $5 \times 4^{2n+3}$ (E) $5 \times 4^{n+3}$

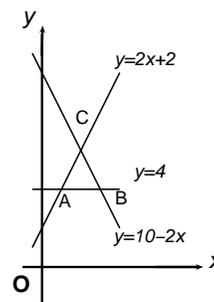
9. If $f(1) = 0$ and $f(n) = f(n - 1) + 2n - 1$ for $n > 0$, then the value of $f(3)$ is
- (A) 8 (B) 9 (C) 7 (D) 5 (E) 2

10. If $ABCDE$ is a regular pentagon and EB and AC intersect at O , then the size of angle \widehat{EOC} in degrees is



- (A) 100 (B) 108 (C) 135 (D) 96 (E) 90

11. The area of triangle ABC in the figure is

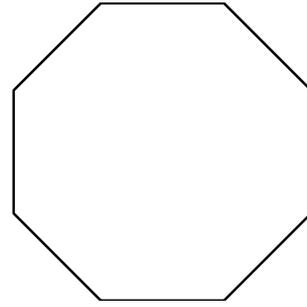


- (A) 2 (B) 3 (C) 4 (D) 3.5 (E) 2.5

12. Aneesa, Bongi and Carol are wearing dresses and shoes that are green, black or yellow. No two dresses or pairs of shoes are the same colour. Aneesa has yellow shoes. Bongi does not have a black dress or black shoes and only Carol has the same colour dress and shoes. Bongi has

- (A) A green dress and yellow shoes
 (B) A black dress and green shoes
 (C) A green dress and green shoes
 (D) A green dress and black shoes
 (E) A yellow dress and green shoes

13. The regular octagon has area 500. The best estimate of the length of one side is



- (A) 10 (B) 15 (C) 12 (D) 5 (E) 20

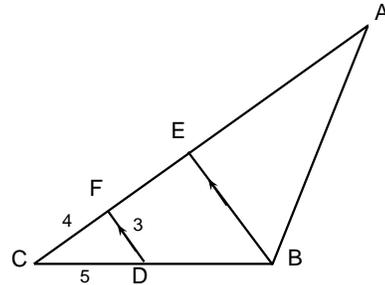
14. If $a_n = \frac{1}{n} - \frac{1}{n+1}$, then $a_1 + a_2 + \dots + a_{100}$ equals

- (A) $\frac{99}{100}$ (B) $\frac{100}{101}$ (C) 1 (D) $\frac{101}{100}$ (E) $\frac{100}{99}$

15. A motorist covers 177.5 km in 2 hours. On the open road he averages 105 km/h and 40 km/h in urban areas. How many minutes did he take to pass through the urban areas?

- (A) 60 (B) 45 (C) 30 (D) 15 (E) 75

16. In triangle ABC , E is the midpoint of AC and D is the midpoint of CB . If DF is parallel to BE , then the length of side AB is



- (A) 8 (B) 10 (C) 14 (D) 13 (E) 11

17. A bag contains 6 blue balls, 8 yellow balls and 2 pink balls. Siphon takes balls from the bag without looking at them. The least number of balls that he must remove in order to ensure that he has three of the same colour is

- (A) 3 (B) 5 (C) 7 (D) 9 (E) 11

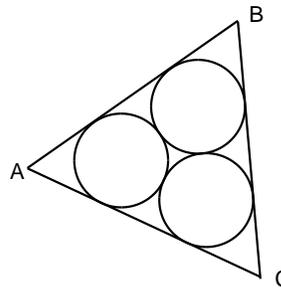
18. If $x = 1 + 2^p$ and $y = 1 + 2^{-p}$ then y equals

- (A) $\frac{x+1}{x-1}$ (B) $\frac{x+2}{x+1}$ (C) $\frac{x}{x-1}$ (D) $2-x$ (E) $\frac{x-2}{x+1}$

19. If $x^2 + 6x + y^2 - 4y + 13 = 0$, then $x + y$ is

- (A) -1 (B) -2 (C) 0 (D) 1 (E) impossible to determine

20. Three touching circles, each with radius 1, are inscribed in triangle ABC . The length of side AB of the triangle is



- (A) 6 (B) $3\sqrt{3}$ (C) $\frac{\sqrt{3}}{2}$ (D) $1 + \sqrt{3}$ (E) $2 + 2\sqrt{3}$
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