# MATHS

# BOOKS - PEARSON IIT JEE FOUNDATION

# FORMULAE

**Solved Example**

**1.** Using the formula $A = \pi r^2$, find A when r=14 cm (take $\pi = 22/7$)

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**2.** Using the formula $S = 2(lb + bh + lh)$, find

S when l=12cm, b=8cm,and h=4 cm.

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**3.** Write the formula for finding the

circumference (C) of a circle with radius r units.

What is the subject in this formula?

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**4.** Make h the subject of the formula, where

V=lbh, and find h, when $V = 960cm^3, l = 20cm$

, and b=12cm.

**5.** (a) In the formula $S_n = \dfrac{n}{2}\{2a + (n - 1)d\}$,

make d as the subject.

(b)    Find    the    value    of    d,    when

$S_n = 240, n = 10,$ and $a = 6.$

**6.** Make f as the subject of the formula

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**7.** If u=15 cm and f=6cm, then find v.

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**8.** If $f = 3cm$ and v=4 cm, then find u.

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**9.** Frame the formula Hypotenuse (h) of right triangle is the square root of sum of the squares of perpendicular sides a and b.

**10.** The slant height (l) of a cone is the square root of the sum of the squares of its radius (r) and its vertical height (h). If for a cone, l=17cm and $r = 15$ cm, then find h.

1. An equation which is used frequendy to solve problems is called a formula.

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2. The number of auxiliary formulae which can be derived from $A = s^2$ is two.

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**3.** Auxiliary formula of $A = \pi r^2$ is $r = \dfrac{A}{\pi}$.

**4.** If $h^2 = a^2 + b^2$, then b $= \sqrt{h^2 - a^2}$.

**5.** Thirty-six is divided into two parts such that one of the parts is twice the other. The two parts are

**6.** There are b boys and g girls in a class and the average of number of boys and the number of girls is 18. Then b+g=_____

**7.** The number of variable present in RHS of A. $2(lb + bh + lh)$ is_____.

**8.** If the cost of two pens is rsx, then the cost of three pens is _____.

**9.** In $A = \dfrac{x}{360°} \times \pi r^2$, $x = 60°$, and r=6cm , then A=_____

**10.** the formulae obtained by transforming the subject in the given formula are called_____

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**11.** The symbolic form of "total surface area (A) of a cube is six times the square of its side (s)"is_____.

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**12.** The symbolic form of "area (A) of a rhombus is half of the product of its diagonals $(d_1, d_2)$" is_____.

**13.** The symbolic form of "simple interest I) is one hundeths of the product principle (I'), time period(T) in years, and rate of interest (R)" is____.

**14.** Relation P,S,C where P is the profit S is the price, and C is the cost price.

**15.** $P = \dfrac{36}{7}r$, where P is the perimeter of the semi-circular region and r is the radius of the semicircle. Find P when r=7

**16.** The number of aubiliar formulae that can be divided from $S = \dfrac{(100 - l)}{100} r$ is_

A. 4

B. 3

C. 2

D. 1

**Answer: C**

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**17.** If V=lbh, then b=_____

A. $\dfrac{v}{lh}$

B. $\dfrac{l}{vh}$

C. $\dfrac{h}{vl}$

D. $lvh$

**Answer: A**

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**18.** The symbolic form of "five times b is added in six times a to get the result c" is____

A. $5b + 6a = c$

B. 5b-6a=c

C. 6b+5a=c

D. 6b-5a=c

Answer: A

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**19.** The subject of the formulae ,$A = 2h(l + b)$

is_____

A. l

B. b

C. h

D. A

**Answer: D**

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**20.** A variable standing alone on the left side of an equation is called_____

    A. the formula

    B. the subject of the formula

    C. the transposition

    D. None of these.

**Answer: B**

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**1.** If $V = s^3$ and $V = 216 cm^3$, then find the value of s in cm.

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**2.** In the formula $\angle P + \angle Q + \angle R + \angle S = 360°$, if $\angle P = 100°$, $\angle Q = 100°$, and $\angle R = 100°$, then find $\angle S$.

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**3.** If $P = \pi r + 2r$ and P=36cm, then find the value of r (in cm).

**4.** If $A = c(a - b)$, then make 'a' the subject of the formula.

**5.** If $h = \dfrac{V}{A}$, $h = 5$, and V=60$cm^3$, then find the value of A $(incm^2)$.

**6.** The sum of the interior angles in a6-sided figure is $720°$ and the six angles are x,y,z,z,y, and x. Express the relation among x,y, and z by making z as the subject.

**7.** If $k = a + bc$, then make 'c' as the subject of the formula.

**8.** The compound interest on a sum of rsp, for T years at R% per annum is given by $l = \left[\left(1 + \dfrac{R}{100}\right)^T - 1\right]$. Make R as the subject of the formula .

**9.** In the previous question if l=662, P=2000, and T=3, then find the value of R.

**10.** Let C denote the temperature of a body in degree Celsius Let F denote its temperature in degree Fahrenheit. The realtion between C and F is given by $\dfrac{C}{100} = \dfrac{F - 32}{180}$. If F=2.2C, then find the value of C.

**1.** Write all the possible related auxiliary formulae from A=$\pi\left(R^2 - r^2\right)$.

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**2.** Make g the subject of the formula $C = \dfrac{1008}{100 + g}$ Find $g(\text{in } \%)$, when C=rs400 and S=rs450.

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**3.** Make r the subject of the formula $V = \dfrac{\pi r^2 h}{3}$

. Find r, when V=27$\pi cm^3$ and h=4cm.

**4.** Make 'a' the subject of the formula

$A = \dfrac{\sqrt{3}a^2}{4}$. Finda, when A=64 $\sqrt{3}cm^2$.

**5.** Make y the subject in $\dfrac{x+y}{x-y} = \dfrac{a+b}{a-b}$

**6.** Frame the formula from the following table.

Make y the subject of the formula.

| $X$ | 1 | 2 | 5 | 7 | 8 |
|---|---|---|---|---|---|
| $Y$ | 1 | 4 | 25 | 49 | 64 |

**7.** From the formula from the following table.

Make a the subject of the formula.

| $a$ | $25^\circ$ | $34^\circ$ | $75^\circ$ | $4^\circ$ | $89^\circ$ | $85^\circ$ |
|---|---|---|---|---|---|---|
| $b$ | $65^\circ$ | $56^\circ$ | $15^\circ$ | $86^\circ$ | $1^\circ$ | $5^\circ$ |

**8.** Frame the formula from the following table.

Make Z the subject of the formula.

| $X$ | 1 | 2 | 1 | 2 | 3 |
|-----|-----|-----|-----|-----|-----|
| $Y$ | 1 | 2 | 2 | 1 | 4 |
| $Z$ | $2\sqrt{2}$ | $\sqrt{2}$ | $\sqrt{5}$ | $\sqrt{5}$ | 5 |

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**9.** If $(x + a)^2 = x^2 + 1 + \dfrac{1}{4x^2}$, then find a.

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**10.** A number x divided by 10 and 7 is added to the quotient and then the sum is multiplied by 3 to give the result N. Frame the formula by making x as the subject.

**11.** If $A = c(a^2 + b^2)$, then make a the subject of the formula.

**12.** The following table shows the relation between a and b.

| $a$ | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| $b$ | 2 | 5 | 12 | 20 | 30 |

Express the relation between a and b with b as the subject.

**13.** If $\dfrac{x+y}{z} = \dfrac{a+b}{c}$, then make y the subject of the formula.

**14.** If $d = ut + \dfrac{1}{2}at^2$, $u = 20$, $a = 10$, and

d=50t, then find t.

**15.** Find the relation between and x and y from

the data given in the following table.

| $x$ | 2 | 3 | 4 | 5 |
|-----|---|----|----|----|
| $y$ | 5 | 10 | 17 | 26 |

Level 1

**1.** The symbolic form of "the sum of four angles in a quadrilateral PQRS is $360°$" is___

A. $\angle P + \angle Q + \angle R + \angle S = 180°$

B. $\angle P + \angle Q + \angle R + \angle S = 360°$

C. $\angle P + \angle Q + \angle R + \angle S = 90°$

D. $\angle P + \angle Q + \angle R + \angle S = 100°$

Answer: B

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**2.** The symbolic form of "time taken (0 for a journey is the quotient of distance covered (d) and average spped (s)" is____

A. $t = \dfrac{d}{s}$

B. $d = \dfrac{t}{s}$

C. $\dfrac{s}{d}$

D. $t = d + s$

**Answer: A**

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**3.** The symbolic form of "area of a sector (A) is half of the product length of the are (l) and radius (r)" is _____

A. A=lr

B. $A = \dfrac{r}{l}$

C. $A = \dfrac{lr}{2}$

D. $A = \dfrac{l + r}{2}$

**Answer: C**

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**4.** The symbolic form of volume (v) of a cube is cube of its length (s)" is_____

A. $V = 3s$

B. $V = \dfrac{s}{3}$

C. $V = s$

D. $V = s^3$

**Answer: D**

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**5.** The symbolic form of "area (A) of a trapezium is half of the product of distance between the paralel side (h) and sum of the lengths of parallel sides (a,b)" is____.

A. $A = \dfrac{h}{2}(a + b)$

B. $A = \dfrac{h}{2}(a - b)$

C. $A = \dfrac{hab}{2}$

D. $A = hab$

**Answer: A**

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**6.** The number of auxiliary formulae that can be derived from $P = \dfrac{x}{360°}(2\pi r)$ _____

A. 1

B. 2

C. 3

D. 4

**Answer: B**

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**7.** If $A = \dfrac{S}{N}$, then N=_____

A. $\dfrac{S}{A}$

B. $\dfrac{A}{S}$

C. $SA$

D. $S + A$

**Answer: A**

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**8.** The symbolic form of "6 less than twice p is equal to 3 more than q" is_____

    A. $2p + 6 = q - 3$

    B. $6 < 2p$

    C. $2p - 6 = q + 3$

    D. $3 > q$

**Answer: C**

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**9.** The subject of the folulae, $s = ut + \dfrac{at^2}{2}$ is____

A. s

B. u

C. t

D. a

**Answer: A**

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**10.** the formulae obtained by transforming the subject in the given formula are called_____

    A. the subject of the formula

    B. the trasnposition

    C. an auxiliary formula

    D. None of these.

**Answer: C**

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**11.** The cost price C is given by the formula C= $\frac{100s}{100 + g}$, where S=selling price and g=gain in %. Make S the subject of the formula . Find S, if $C = rs800$ and g=20. The following steps are involved in solving the above problem. Arrange them in sequential order.

(A) $\Rightarrow 100S = C(100 + g)$

(B) $S = \dfrac{(100 + g)C}{100}$

(C) Given $C = \dfrac{100S}{100 + g}$

(D) $\therefore S = \dfrac{(100 + 20) \times 800}{100} = rs960$

A. ABCD

B. BCAD

C. CADB

D. CABD

**Answer: D**

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**12.** In the formulae $S_n = \dfrac{n}{2}\{2a + (n-1)d\}$ make d as the subject

The following steps are involved in solving the above problem. Arrange them in sequential

order.

(A) $(n-1)d = \dfrac{2S_n}{n} - 2a$

(B)                                                                      Given,

$S_n = \dfrac{n}{2}[2a + (n-1)d] \Rightarrow n[2a + (n-1)d]$

$=2S_n$

(C) $\Rightarrow d = \dfrac{2}{n-1}\left[\dfrac{S_n}{n} - a\right]$

(D) $2a + (n-1)d = \dfrac{2S_n}{n}$

    A. DBAC

    B. BDAC

    C. ABDC

    D. BDCA

**Answer: B**

**13.** The compound interest on a certain sum is given by $C.I. = P\left(1 + \dfrac{R}{100}\right)^n - P$. Find C.I. when $P = rs1000$, $R = 10\%$ P.a., and n=2.

The following steps are involved in solving the above problem. Arrange them in sequential order.

(A) $\therefore C.I. = rs210$

(B) $1000\left(\dfrac{11}{10}\right)\left(\dfrac{11}{10}\right) - 1000 = 1210 - 100$

(C) Given

$$Cl = P\left(1 + \frac{R}{100}\right)^n - P, P = rs1000,$$

R=10% p.a., and n=2

(D) C.I. =$1000 + \left(1 + \frac{10}{100}\right)^2 - 1000$

A. BCDA

B. DCBA

C. CDBA

D. BDCA

**Answer: C**

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**14.** The focal length of a less is given by the formula $\dfrac{1}{f} = \dfrac{1}{u} + \dfrac{1}{v}$. Make f as the subject of the formula.

if $u = 20cm$ and v=30, then find f.

The following steps are involved in solving the above problem. Arrange them in sequential order.

(A) Given $\dfrac{1}{f} = \dfrac{1}{u} + \dfrac{1}{v}$

(B) $\Rightarrow f = \dfrac{uv}{u + v}$

(C) $f = \dfrac{20 \times 30}{20 + 30} = \dfrac{600}{50} = 12cm.$

(D) $\Rightarrow \dfrac{1}{f} = \dfrac{v + u}{uv}$

A. ADBC

B. BADC

C. ACDB

D. DBAC

**Answer: A**

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**15.** Match the following Column A to Column B

| Column A | Column B |
|---|---|
| 15. Changing a term from one side of an equation to the other side | (a) Subject |
| 16. Coefficient of the subject of a formula | (b) Transposition |
| 17. In a formula, $a$ variable which is expressed in terms of other variables | (c) $C = \pi d$ |
| 18. The circumference $(C)$ of a circle is $\pi$ times its diameter $(d)$. | (d) 1 |

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**16.** Match the following Column A to Column B

| Column A | Column B |
|---|---|
| 19. A symbol that occurs alone on LHS of the equality | (a) Formula |
| 20. The symbolic form of "The sum of the angles of $\triangle ABC$ is $180°$." | (b) Subject |
| 21. The symbolic form of "Perimeter ($P$) of $\triangle ABC$ is the sum of its sides." | (c) $P = AB + BC + AC$ |
| 22. An equation based on a rule | (d) $\angle A + \angle B + \angle C = 180°$ |

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**Level 2**

**1.** If $A = 2\pi r$, then r=_____

A. $2\pi A$

B. $\dfrac{2\pi}{A}$

C. $\dfrac{2A}{\pi}$

D. $\dfrac{A}{2\pi}$

**Answer: D**

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**2.** In $A = 2h(l + b)$, if $A = 54m^2$, l=5m, and b=4m, then find h.

A. 6m

B. 4m

C. 3m

D. 2m

**Answer: C**

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**3.** If $A = 2(lb + bh + lh)$, then which of the following is/are true?

A. $l = \dfrac{A - 2bh}{2(b + h)}$

B. $b = \dfrac{A - 2h}{2(l + b)}$

C. $h = \dfrac{A - 2lb}{2(l + b)}$

D. None of these

**Answer: D**

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**4.** The length of an are of a circle is given by the formula $l = \dfrac{x}{360^\circ} \times 2\pi r$.

Make r as the subject of the formula.

A. $r = \dfrac{720° \pi x}{l}$

B. $r = \dfrac{180° l}{\pi x}$

C. $r = \dfrac{720° l}{\pi x}$

D. $r = \dfrac{180° l}{x}$

**Answer: B**

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**5.** The length of an are of a circle is given by the formula $l = \dfrac{x}{360°} \times 2\pi r$.

If $x = 60°$ and r=3cm, then find l.

A. 22cm

B. $2\pi cm$

C. $\pi cm$

D. $11cm$

**Answer: C**


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**6.** The length of an are of a circle is given by the formula $l = \dfrac{x}{360°} \times 2\pi r$.

If $l = 4\pi$ cm and r=18cm, then find x.

A. $60°$

B. $90°$

C. $80°$

D. $40°$

**Answer: D**

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7. The number of variables in the formula S=ut+ $\frac{at^2}{2}$ is__.

A. 4

B. 3

C. 2

D. 1

**Answer: A**

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**8.** The number of all possible squares in $n \times n$ network is equal to $1^2 + 2^2 + 3^2 + \ldots + n^2$ .

Find the number of possible squares in $7 \times 7$ network.

A. 103

B. 91

C. 120

D. 140

**Answer: D**

**9.** Write the relation between H and m from the given table.

| Number of hours($H$) | 1 | 3 | 5 | 6 | 10 |
|---|---|---|---|---|---|
| Number of minutes($m$) | 60 | 180 | 300 | 360 | 600 |

A. $H = 60m$

B. $m = 60H$

C. $H + m = 1$

D. $m = 30H$.

**Answer: B**

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**10.** Simple interest on a certain sum is given by $l = \dfrac{PTR}{100}$. Make T as the subject of the formula. Find T when P=rs1000, R=10% p.a., and l=rs 300.

A. $T = \dfrac{100l}{PR}$, 6 years

B. $T = \dfrac{100l}{PR}$, 3 years

C. $T = \dfrac{100P}{IR}$, 4 years

D. $T = \dfrac{100R}{Pl}$ : 5 years.

**Answer: B**

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**11.** If $A = S^2$ and $A = 324cm^2$, then find the value of S(in cm).

A. 162

B. $(324)^2$

C. 18

D. 16

**Answer: C**

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**12.** In the formula $\angle A + \angle B + \angle C = 180°$, if $\angle A = 90°$ and $\angle B = 55°$, then $\angle C =$ _____

A. $45°$

B. $45°$

C. $25°$

D. $35°$

**Answer: D**

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**13.** If $A = \dfrac{d_1 d_2}{2}$, $d_1 = 6cm$, and $d_2 = 8$cm,

then find the value of A (in $cm^2$).

    A. 12

    B. 18

    C. 36

    D. 24

**Answer: D**

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**14.** If $A = 2h(l + b)$, then b=____

A. $2Ah - 1$

B. $\left(\dfrac{A}{2h}\right) - 1$

C. $2Al - h$

D. $\dfrac{A}{2l} - h$

**Answer: B**

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**15.** If $S = (n - 2)180°$ and $S = 540°$, then find
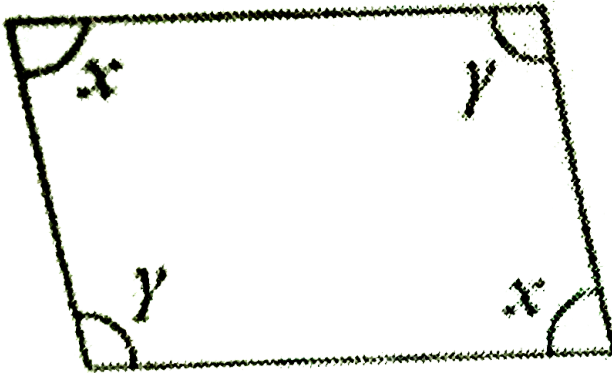
n.

    A. 4

    B. 3

    C. 5

    D. 7

**Answer: C**

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**16.** The sum of four angles of a quadrillateral is $360°$ from the following figure, express the relation between x and y by making x as the subject.



A. $x = 180° - y$

B. $y = 180° - x$

C. $x = 180° + y$

D. $y = 180° + x$

**Answer: A**

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**17.** If $M = a + \dfrac{b}{c}$, then b=_____

A. $Mc - a$

B. $M - ac$

C. $\dfrac{(M - a)}{c}$

D. $(M - a)c$

**Answer: D**

**Level 3**

**1.** If $V = lbh$, then h=__

   A. $\dfrac{v}{lb}$

   B. $\dfrac{v}{bh}$

   C. $\dfrac{v}{lh}$

   D. $\dfrac{lb}{v}$

**Answer: A**

**2.** In $A = s^2 - (s - 2w)^2$, if w=1 m and s=6m, then find $A(\text{in}m^2)$.

A. 20

B. 10

C. 15

D. 16

**Answer: A**

**3.** Frame the formula: volume (v) of a cuboid is the product of its length (l), breadth (b), and height (h).

A. $v = lbh$

B. $v = l + b + h$

C. $v = \dfrac{lb}{h}$

D. $v = h(l + b)$

**Answer: A**

**4.** If $S = \dfrac{(100 + g)C}{100}$, then which of the following is/ are true?

A. $C = \dfrac{100S}{(100 + g)}$

B. $g = \dfrac{100(S - C)}{C}$

C. Both a and b

D. None of these.

**Answer: C**

5. The number of auxiliary formulae that can be derive from the formula $D = \left[ \dfrac{n(n-1)}{2} \right] - n$

.

A. 1

B. 2

C. 3

D. 4

**Answer: A**

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**6.** The number of diagonals of a convex polygon of sides n is equal to $\dfrac{n(n-3)}{2}$. Find the number of diagonals is hexagon.

A. 9

B. 6

C. 10

D. 8

**Answer: A**

7. Write the relation between x and y from the given table.

| $x$ | $26°$ | $34°$ | $75°$ | $30°$ | $82°$ | $10°$ |
|---|---|---|---|---|---|---|
| $y$ | $64°$ | $56°$ | $15°$ | $60°$ | $8°$ | $80°$ |

A. $x = y - 45°$

B. $x = y + 54°$

C. $x = 90° - y$

D. $x + y = 100°$

**Answer: C**

**8.** The area of four walls of room is given by

A=2h(l+b). Make l as the subject of the formula.

Find l when $A = 100m^2$, h=5m, and b=4m.

A. $l = \dfrac{A}{2h} = b, 6m$

B. $l = \dfrac{A}{2h} - h, 5m$

C. $l = \dfrac{A}{2b} - h, 4m$

D. $l = \dfrac{A}{2b} - h, 8m$

**Answer: A**

**9.** If $A = \dfrac{d}{2}(a + b)$, then which of the following is/are true?

A. $d = \dfrac{2A}{a + b}$

B. $a = \left(\dfrac{2A}{d}\right) - b$

C. Both a and b

D. None of these

**Answer: C**

**10.** The following table shows the relation between the angles x and y.

| $X$ | $90°$ | $100°$ | $110°$ | $120°$ | $130°$ | $140°$ |
|---|---|---|---|---|---|---|
| $Y$ | $90°$ | $80°$ | $70°$ | $60°$ | $50°$ | $40°$ |

Express the relation between x and y with x as the subject.

A. $y = 180° - x$

B. $x = 180° - y$

C. $y = 180° + x$

D. $x = 180° + y$

**Answer: B**

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**11. If** $\dfrac{a + b}{c + d} = \dfrac{x}{y}$, then y=____

A. $y = x(a + b)(c + d)$

B. $y = \dfrac{x}{(a + b)(c + d)}$

C. $y = \dfrac{x(c + d)}{a + b}$

D. $y = \dfrac{x(a + b)}{c + d}$

**Answer: C**

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**Test 1**

**1.** If $\dfrac{1}{f} = \dfrac{1}{u} + \dfrac{1}{v}$, then make v as the subject of the formula.

A. $\dfrac{1}{v} = \dfrac{1}{f} - \dfrac{1}{u}$

B. $\dfrac{1}{v} = \dfrac{u - f}{fu}$

C. $v = \dfrac{fu}{u - f}$

D. $\dfrac{1}{u} + \dfrac{1}{v} = \dfrac{1}{f}$

**Answer: C**

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**2.** The sum of the digits of a two-digit number is 11. if 9 is subtracted from the number, then the digits interchagne their places. Find the number. The following steps are involved in

solving the above problem. Arrange them in sequential order

(A) Let the units digit be x. therefore , the tens digit is (11-x).

$\therefore$ The number is $10(11 - x) + x = 110 - 9x$.

(B) Given that

$110 - 9x - 9 = 9x + 11 \Rightarrow x = 5$.

(C) Units digit is S and tens digit is 6 and the required number is 65.

(D) The number formed by interchanging the digits is $10x + (11 - x) = 9x + 11$.

A. ADBC

B. ABDC

C. ABCD

D. BADC

**Answer: A**

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**3.** If $A = c(a - b)$, then a_____

A. $\left(\dfrac{A}{c}\right) - b$

B. $\left(\dfrac{A}{c}\right) + b$

C. $\left(\dfrac{A}{b}\right) - c$

D. $\left(\dfrac{A}{b}\right) + c$

**Answer: B**

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**4.** The sum of the interior angles in a 6-sided polygon is $720°$ and the six angles are x,y,z,z,y. and x. express the relation among x, y, and z by making z as the subject.

A. $z = 3606(\circ) - x + y$

B. $z = 360° - (x + y)$

C. $z = 360° + x - y$

D. $z = 36° + x + y$

**Answer: B**

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**5.** If $k = a + bc$, then c=_____

A. $\dfrac{b + a}{b}$

B. $\dfrac{k + b}{a}$

C. $\dfrac{k - a}{b}$

D. $\dfrac{k - b}{a}$

**Answer: C**

**6.** If $A = c(a^2 + b^2)$, then which of the following is/are true?

A. $c = \dfrac{A}{a^2 - b^2}$

B. $a = \sqrt{\dfrac{A}{c} + b^2}$

C. Both a and b

D. None of these.

**Answer: D**

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7. The following table shows the relation between a and b.

| $a$ | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| $b$ | 2 | 5 | 12 | 20 | 30 |

Express the relation between a and b with b as the subject.

A. $b = 2a$

B. $b = 3a$

C. $b = (a + b)^2$

D. $b = a(a + 1)$

**Answer: D**

**8.** If $\dfrac{x + y}{z} = \dfrac{a + b}{c}$, then y=_____

A. $\dfrac{(a + b)z}{c} - x$

B. $\dfrac{(a+b)z-x}{c}$

C. $\dfrac{(a+b)z}{c}+x$

D. $\dfrac{(a+b)z+x}{c}$

**Answer: A**

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**9.** One-fifth of a number is 5 more than one-tenth of the number. Find the number

A. 50

B. 75

C. 25

D. 100

**Answer: A**

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**10.** If twice a number is added to half the number, then the result is 250. Find one-tenth of the number.

A. 20

B. 10

C. 50

D. 25

**Answer: B**

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**11.** Which of the following is a solution of

$2x - 5 > 4x - 3$?

A. $0$

B. $1$

C. $-1$

D. $-2$

**Answer: D**

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| Column A | Column B |
|---|---|
| **12.** If $\dfrac{x}{10} + \dfrac{x}{15} + \dfrac{x}{30} = 3$, then $x =$ | (a) 10 |

| Column A | Column B |
|---|---|
| If 2/3 of a certain number exceeds its one-sixth by 10, then the number is _____. | (c) −5 |

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## Test 2

**1.** Make l as the subject of the formula

A=2(lb+bh+hl).

The following steps are involved in solving the above problem Arrange them in sequential order.

A. $lb + bh + hl = \dfrac{A}{2}$

B. $l = \dfrac{A - 2bh}{2(b + h)}$

C. $2(lb + bh + hl) = A$

D. $l(b + h) = \dfrac{A}{2} - bh$

**Answer: C**

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**2.** The sum of the digits of a two-digit number is 12. if 18 is subtracted from the number, then the digits interchange their places. Find the number. The following steps are involved in solving the above problem. Arrange them in sequential order.

(A) Units digits is 5, tens digit is 7, and the number is 75.

(B) Given that $120 - 9x - 18 = 9x + 12 \Rightarrow 90 = 18x \Rightarrow x = 5$.

(C) The number formed by interchanging the digits is $10x + (12 - x) = 9x + 12$.

(D) Let the digit in the units place be x. Then the digit in the tens place be $(12 - x)$. $\therefore$ The number is

$$10(12 - x) + x = 120 - 10x + x = 120 - 9x.$$

A. ABCD

B. DCBA

C. DBCA

D. DABC

Answer: B

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**3.** If $A = 2h(l + b)$, then b=_____

   A. $2Ah - l$

   B. $\left(\dfrac{A}{2h}\right) - l$

   C. $2Al - h$

   D. $\dfrac{A}{2l} - h$

**Answer: B**

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**4.** If $M = a + \dfrac{b}{c}$, then b=_____

A. $Mc - a$

B. $M - ac$

C. $\dfrac{(M - a)}{c}$

D. $(M - a)c$

**Answer: D**

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**5.** If $A = \dfrac{d}{2}(a + b)$, then which of the following is/are true?

A. $d = \dfrac{2A}{a + b}$

B. $a = \left(\dfrac{2A}{d}\right) - b$

C. Both a and b

D. None of these

**Answer: C**

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**6.** The following table shows the relation between the angles x and y.

| $x$ | $90°$ | $100°$ | $110°$ | $120°$ | $130°$ | $140°$ |
|---|---|---|---|---|---|---|
| $y$ | $90°$ | $80°$ | $70°$ | $60°$ | $50°$ | $40°$ |

Then which of the following is true?

A. x=y

B. $x + y = 180°$

C. $x - y = 20°$

D. $x = 2y.$

**Answer: B**

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**7.** If $\dfrac{a+b}{c+d} = \dfrac{x}{y}$, then y=____

A. $y = x(a+b)(c+d)$

B. $y = \dfrac{x}{(a+b)(c+d)}$

C. $y = \dfrac{x(c+d)}{a+b}$

D. $y = \dfrac{(a+b)}{c+d}$

**Answer: C**

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**8.** Two-thirds of a number is 32 less than three fifths of the number find the number.

    A. $360$

    B. $-480$

    C. $-360$

    D. $480$

**Answer: B**

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**9.** If one third ofa number is subtracted from three times the number, then the result is 800, find the number.

A. 300

B. 400

C. 200

D. 600

**Answer: A**

**10.** Which of the following is a solution of $\dfrac{2x-5}{3} > \dfrac{3x+3}{4}$ ?

A. x=-5

B. x=-2

C. Both a and b

D. Neither a nor b

**Answer: D**

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**11.** Match the following Column A to Column B

| Column A | Column B |
|---|---|
| If $\dfrac{x}{10} + \dfrac{x}{15} + \dfrac{x}{30} = 3$, then $x =$ | (a) 10 |
| If $1.5t + 2.5t + 3.5t = 70 + 0.5t$, then $t =$ | (b) 20 |
| If 2/3 of a certain number exceeds its one-sixth by 10, then the number is _____. | (c) –5 |
| If $3x + 5 > 25 - x$, $x \in$ Q then $x >$ _____. | (d) 5 |
| | (e) 15 |
| | (f) 25 |