PRACTICE SET 1

A Whole Content Based Test for Class 7th Mathematics Asiad

1. Which of the following numbers is equal to 36?

A $\dfrac{(-2)\cdot(-3)\cdot 3\cdot 4}{-2(-2)\cdot 6\cdot}$

B $\dfrac{(-3)\cdot(-2)}{-3}$

C $\dfrac{(-2)\cdot 9\cdot(-3)\cdot(-2)}{3(-2)\cdot 3\cdot}$

D $\dfrac{(-3)\cdot(-2)}{-1}$

2. Simplify and choose the correct option.

$$-[10\cdot(-2)+(-25)]\mid(-5)$$

A -9 B -5

C -2 D 1

3. Kate bought 4 sweaters that each cost the same amount and 1 skirt that cost `20. The items she bought cost a total of `160 before tax was added. If x represents the cost of one sweater, write the correct expression to show the given problem.

A $4x=160+20$

B $4x+20=160$

C $4x-20=160$

D None of the above

4. Evaluate and choose the correct option.

$$1\ +\dfrac{1}{3}\ +\dfrac{1}{5}\ \ -\dfrac{1}{3}\ +\dfrac{1}{5}\ +\dfrac{1}{7}$$

$$-1\ \ +\dfrac{1}{3}\ +\dfrac{1}{5}\ +\dfrac{1}{7}\ \cdot\ \ -\dfrac{1}{3}\ +\dfrac{1}{5}$$

A $\dfrac{1}{5}$ B $\dfrac{1}{3}$

C $\dfrac{1}{7}$ D $\dfrac{1}{9}$

5. Which of the following means $5n+7=17$?

A 7 more than 5 times a number is 17

B 5 more than 7 times a number is 17

C 7 less than 5 times a number is 17

D 12 times a number is 17

6. Andrew deposited `5500 and Anamika deposited `4800 in a bank. If the bank pays a simple interest of 2% per annum, then how much more interest would Andrew get than Anamika after a year?

A `14  B `96

C `110  D `206

7. In the given figure, ABC is a straight line. If $EF \parallel AD$, $\angle BEG = 104°$ and $\angle BGF = 152°$, then find the values of x and y.
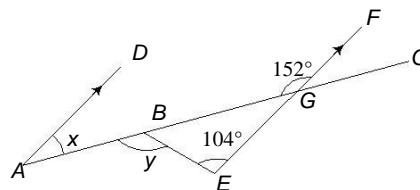
A $x=132°$, $y=46°$ B $x=28°$, $y=132°$

C $x=46°$, $y=114°$ D None of these

8. A cuboid was made using cardboard. Karishma made some changes to the size of the original cuboid. She increased the length by 10% and the breadth is $\dfrac{4}{5}$ of the original breadth. The ratio of the new height to the original height is 11 : 10. If the volume of cuboid is equal to length × breadth × height, then what is the new volume of cuboid as a percentage of its original volume?

A 98.6% B 96.8%

C 94.2% D 92.4%

9. Three times an angle is equal to two times its complement. What is the value of angle?

A 180° B 120°

C 36° D 30°

10. If the speed of light is $3.00\cdot 10^{8}$ m/s, then how far would a beam of light travels in 4000 s?

A $12\cdot 10^{12}$ B $1.2\cdot 10^{10}$

C $1.2\cdot 10^{12}$ D $1200\cdot 10^{8}$

11. An insurance policy pays 90% of the first ` 20000 of a certain patient's medical expenses, 80% of the next ` 40000 and 40% of the ` 40000 after that. If the patient's total bill is ` 92000, then how much will the policy pay?

A ` 90000

B ` 84000

C ` 70000

D ` 62800

12. In 2010, 3,500,000,000,000 prescription drug orders were filled in India. If the average price of each prescription was roughly `65, then how much did India pay for prescription drugs last year?

A $2.275 \cdot 10^{14}$

B $2.275 \cdot 10^{12}$

C $2.275 \cdot 10^{12}$

D None of the above

13. If $C = \dfrac{AX}{X + 15}$ is the formula for a child's dose of medicine, where A is the adult dose in grams and Y is the child's age in years, then find the dose for a child who is 10 yr old, if the adult dose is 50 g.
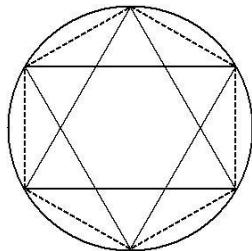
A 10 g   B 20 g

C 25 g   D 40 g

14. If $x = -2$, $y = 3$ and $z = -4$, then what is the value of $-4x + 5y + 2z$?

A 8   B -8

C 15   D 10

15. A travelling agent gets a commission of 4.5% on the sale of tickets. If on a certain day, he gets ` 31.5 as commission, then the cost of tickets sold on that day is worth
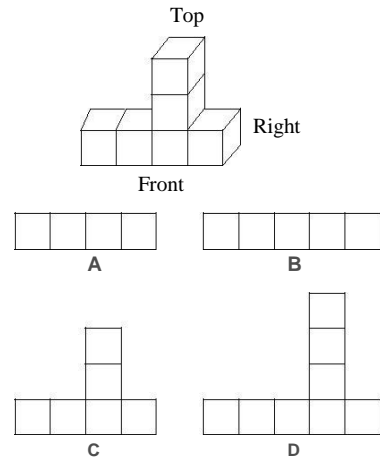
A ` 700      B ` 400

C ` 1000      D ` 3150

16. How many lines of symmetry does the given figure have?

A 4   B 6

C 8   D 0

MATHEMATICS Asiad CLASS VII

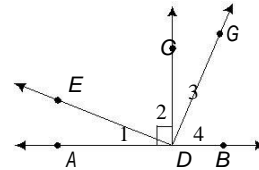**17.** What is the front view of the given figure?

18. Simplify and choose the correct option.

$63 - (-3)\{-3 - \overline{8 - 3}\} \mid 3\{5 + (-3)(-1)\}$

A 62   B 52

C 46   D 72

19. If $\angle 1 = 32°$ and $\angle 2$ and $\angle 3$ are complementary, then the measure of $\angle 4$ is


A 54°   B 32°

C 36°   D 58°

20. Two different brands of air conditioner were sold at the same price of ` 30400 each. The sale of the first set made a profit of 20% while that of the second made a loss of 25%. Find the net gain/loss on the sale of the air conditioners.

A Gain ` 1520      B Loss ` 2000

C Loss ` 5067      D Gain ` 2000

21. In the given figure, $ABCD$ is a parallelogram such that $AB \| CD$ and $AD \| BC$ with opposite angles equal. If $DA = DX$, then find the values of $\angle m$ and $\angle n$.
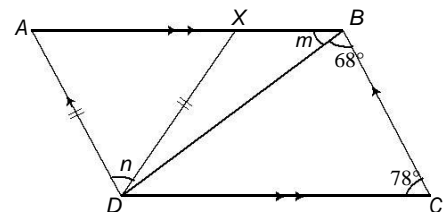
A $m = 24°, n = 34°$ B $m = 24°, n = 24°$

C $m = 34°, n = 24°$ D $m = 34°, n = 34°$

22. Sammy drew a rectangle that was *w* inches wide. The expression $2(2w) + 2(w)$ represents the perimeter of the rectangle that Sammy drew. Which statement relates the perimeter to the width of the rectangle?
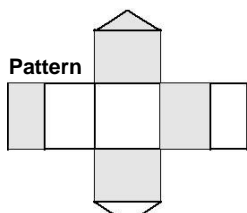
   A The perimeter is 6 inch more than the width

   B The perimeter is 6 times the width.

   C The perimeter is 2 inch more than the width

   D The perimeter is 2 times the width
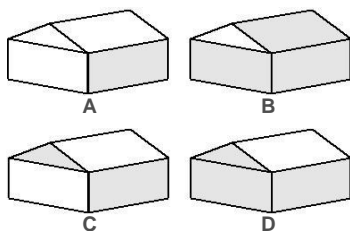
23. Simplify and choose the correct option.

$$\frac{(2\,hj^2\,k^{-2} \cdot h^4\,j^{-1}\,k^4)^0}{2h^{-3}\,j^{-4}\,k^{-2}}$$

   A $h^8\,j^5\,k^4$ **B** $2h^6\,j^4\,k^4$ **C** $\dfrac{h^3\,j^4\,k^2}{2}$ **D** $2h^3\,j^4\,k^2$

24. Which of the solid shapes shown could be made from the pattern?

Pattern
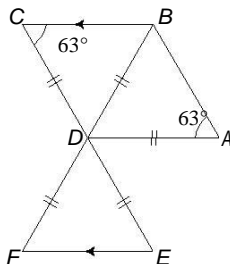
Solid shapes

A   B

C   D

25. Simplify and choose the correct option.

$$\frac{(2\,m^{-1}\,pq^0)^{-4} \cdot 2m^{-1}\,p^3}{2pq^2}$$

   A $\dfrac{m^3}{16p^2\,q_2}$ **B** $16p^2\,q^2\,m^3$

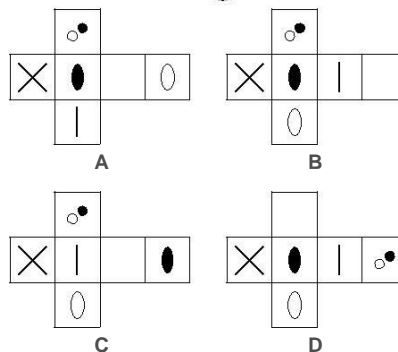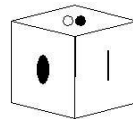   **C** $\dfrac{16\,m^3}{p^2\,q^2}$ **D** $\dfrac{1}{16m^3\,p^2\,q^2}$

26. In the given figure if *BC* is parallel to *EF* and $DC = DB = DA = DE = DF$. Then, what is the value of $\angle CDB$ and sum of $\angle CDF$ and $\angle ADE$?

27. Choose the correct net of the given cube?

Completed cube

A   B

C   D

A 64° and 172°   **B** 54° and 180°

C 64° and 184°   **D** 54° and 198°

28. The formula for the sum of *n* terms is given by $S_n = n/2\,\{2a + (n-1)\,d\}$. If $n = 10$, $a = 6$ and $d = 4$, then S_n is equal to

   A 200   **B** 240   **C** 280   **D** 300

29. Match the following.

	COLUMN **A**		COLUMN **B**
I.	The supplement of 80° is	(i)	10°
II.	The complement of 80° is	(ii)	Hypotenuse
III.	The long side of a right triangle is called	(iii)	Rectangle
IV.	A parallelogram in which an angle is 90° is called a	(iv)	Altitude
		(v)	100°
		(vi)	Square

CODES

	I	II	III	IV			I	II	III	IV
A	v	i	iv	iii		**B**	i	v	ii	vi
C	i	v	iv	vi		**D**	v	i	ii	iii

30. Which of the cubes shown could be made from the pattern given?

Pattern

A   B   C   D
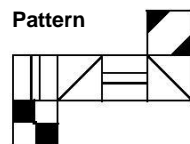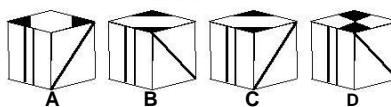
Solutions

1. (d) Consider, $\dfrac{(-2)\cdot 3\cdot(-3)\cdot(-2)}{-1} = \dfrac{-\dfrac{36}{-1}}{} = 36$

2. (a) Consider, $-[10\cdot(-2)+(-25)]\mid(-5)$
$= -[-20-25]\mid(-5)$
$= -[-45]\mid(-5)$
$= 45\mid-5 = -9$

3. (b) Given,
Number of sweaters bought $= 4$
and cost of 1 sweater $= x$
$\therefore$ Cost of 4 sweaters $= 4x$
Now, number of skirts bought $= 1$
Cost of 1 skirt $= ` 20$
$\therefore$ Total cost $= 4x + 20$
According to the question,
$$4x + 20 = 160$$

4. (c) Let $\dfrac{1}{3}+\dfrac{1}{5} = A$ and $\dfrac{1}{3}+\dfrac{1}{5}+\dfrac{1}{7} = B$
According to the question, we have
$(1+A)B - (1+B)A$
$= B + AB - A - AB$
$= B - A$
$= \dfrac{1}{3}+\dfrac{1}{5}+\dfrac{1}{7} - \dfrac{1}{3}+\dfrac{1}{5} = \dfrac{1}{7}$

5. (a) 5 times a number $(n) = 5N$
7 more than 5 times a number $= 7 + 5N$
According to the first statement,
$$5N + 7 = 17$$

6. (a) Amount deposited by Andrew $= ` 5500$
Rate of interest $= 2\%$
Time $= 1$ yr
Interest earned $= \dfrac{5500\cdot 2\cdot 1}{100} = ` 110$
Amount deposited by Anamika $= ` 4800$
Rate of interest $= 2\%$
Time $= 1$ yr
$\therefore$ Interest earned $= \dfrac{4800\cdot 1\cdot 2}{100} = 96$
$\therefore$ Difference in interests $= ` (110 - 96) = ` 14$

7. (b)
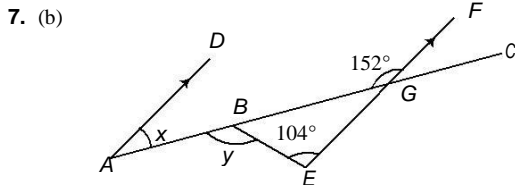
In the above figure,
$$EF \parallel AD$$
$$\angle BEG = 104°$$
$$\angle BGF = 152°$$
Now, $$AD \parallel GF$$
$\Rightarrow \angle X + 152° = 180°$ [interior angles on the same side of a transversal are supplementary]
$\therefore \angle x = 180° - 152° = 28°$
Also, $\angle AGF + \angle AGE = 180°$ [linear pair]

$\therefore 152° + \angle AGE = 180°$
$\Rightarrow \angle AGE = 180° - 152° = 28°$
Now, in BEG,
$$\angle BEG + \angle BGE = \angle y$$
[exterior angle is equal to the sum of interior opposite angles]
$\therefore \angle y = 104° + 28° = 132°$

8. (b) Let original length be l, original breadth be w and original height be h.
Original volume $= lwh$
Now, new length $= \dfrac{11}{10}l$ Q new length $l = \dfrac{10}{100}l$
New breadth $= \dfrac{4}{5}w$
and new height $= \dfrac{11}{10}h$
New volume, $\dfrac{11}{10}l\cdot\dfrac{4}{5}w\cdot\dfrac{11}{10}h = \dfrac{484}{500}lwh$
$= 0.968\,lwh$
$\therefore$ New volume as a percentage of original volume
$= \dfrac{0.968\,lwh}{lwh}\cdot 100 = 96.8\%$

9. (c) Let the angle be x and complement be y.
Then, $3x = 2y$
$\Rightarrow y = \dfrac{3}{2}x = 1.5x$
Now, $x + y = 90°$ [complementary angles]
$\Rightarrow x + 1.5x = 90° \Rightarrow$
$2.5x = 90°$
$\Rightarrow x = 36°$

10. (c) Speed of light $= 3.00\cdot 10^8$ m/s
Time to travel $= 4000$ s
Distance travelled $= 3\cdot 10^8\cdot 4000$
$= 12000\cdot 10^8 = 1.2\cdot 10^{12}$

11. (d) Patient's total bill $= ` 92000$
Money back on first $` 20000 = \dfrac{90}{100}\cdot 20000$
$= ` 18000$
Money back on next $` 40000 = \dfrac{40000\cdot 80}{100}$
$= ` 32000$
Remaining amount $= 92000 - 20000 - 40000$
$= ` 32000$
Money back on remaining amount $= \dfrac{32000\cdot 40}{100}$
$= ` 12800$
$\therefore$ Total money received from insurance
$= ` 18000 + ` 32000 + ` 12800$
$= ` 62800$

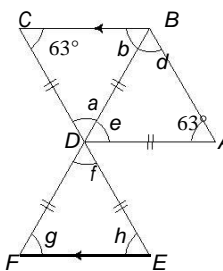**12.** (a) Prescription orders in India, for 2010
$= 3,500,000,000,000$
$= 3.5\cdot 10^{12}$
Average price of each prescription $= ` 65$
$\therefore$ Total price $= ` 65\cdot 3.5\cdot 10^{12}$
$= 227.5\cdot 10^{12} = 2.275\cdot 10^{14}$

13. (b) Given, $C = \dfrac{AX}{X + 15}$

Here, $A = 50$ g and $X = 10$ yr

$\therefore C = \dfrac{50 \cdot 10}{10 + 15} = \dfrac{500}{25} = 20$ g

14. (c) Consider, $-4x + 5y + 2z$

Given, $x = -2$, $y = 3$ and $z = -4$

$\therefore -4(-2) + 5(3) + 2(-4)$

$\Rightarrow 8 + 15 - 8 = 15$

15. (a) Commission received by travelling agent at rate = 4.5%

Amount of commission received = ` 31.5

We have, $\dfrac{4.5}{100} \cdot x = ` 31.5$

$\therefore \qquad x = \dfrac{31.5}{4.5} \cdot 100 = 700$

16. (b) It has 6 lines of symmetry.

17. (c)

18. (a) Consider, $63 - (-3)\{-3 - \overline{8 - 3}\} \, | 3\{5 + (-3)(-1)\}$

$\qquad = 63 + 3\{-3 - 5\} \, | 3(5 + 3)\}$

$\qquad = 63 + 3\{-8\} \, | 3(8)$

$\qquad = 63 - 24 \, | 24 = 63 \quad -1 = 62$

19. (d) Given, $\qquad\qquad \angle 1 = 32°$

and $\qquad\qquad \angle 2 + \angle 3 = 90°$

Also, $\qquad\qquad \angle 1 + \angle 2 = 90°$

$\Rightarrow \qquad\qquad \angle 1 = \angle 3 = 32°$

We know that, $\qquad \angle 3 + \angle 4 = 90°$

$\Rightarrow \qquad\qquad 32° + \angle 4 = 90°$

$\Rightarrow \qquad\qquad \angle 4 = 90° - 32° = 58°$

20. (c) Let the cost of air conditioner be x.

Profit on sales of first type air conditioner = 20%

Sales price of first type air conditioner = 30400

So, $\dfrac{120}{100} \cdot x = 30400$

$\Rightarrow \qquad x = \dfrac{30400 \cdot 100}{120} = 25333.33$

Loss on sales of second type air conditioner = 25%

So, $\dfrac{75}{100} \cdot x = 30400$

$\Rightarrow \qquad x = \dfrac{30400 \cdot 100}{75} = 40533.33$

Total cost price = 25333.33 + 40533.33 = 65866.66

Total sell = 2 · 30400 = 60800

Gain/Loss = 60800 − 65866.66 = − 5066.66 ≈ − 5067

21. (c) Given, $\qquad AD \parallel BC$,

$\qquad\qquad AB \parallel CD$

and $\angle A = \angle C$, $\angle B = \angle D$

Also, given $\angle C = 78° \Rightarrow \angle A = 78°$

In ADX,

$\qquad\qquad AD = XD$

$\Rightarrow \qquad \angle DAX = \angle DXA$

$\qquad$ [angle opposite to equal sides are also equal]

$\therefore \angle DXA = 78°$

Also, $\angle ADX + \angle DAX + \angle DXA = 180°]$

$\qquad$ [sum of three angles of a triangle is 180°]

$\Rightarrow n + 78° + 78° = 180°$

$\therefore n = 24°$

Also, $\qquad\qquad AB \parallel CD$

$\therefore \angle ABC + \angle BCD = 180°$

$\therefore m + 68° + 78° = 180°$

$\qquad$ [interior angles on the same side of transversal are supplementary]

$\qquad\qquad m = 34°$

22. (b) By the given statement in question,

Perimeter = $2(2w) + 2(w) = 4w + 2w = 6w$

where, w is the width of the rectangle in inches.

23. (c) Consider $\dfrac{(2hj^2 k^{-2} \cdot h^4 j^{-1} k^4)^0}{2h^{-3} j^{-4} k_{-2}}$

We know that, $a^0 = 1$

$\therefore$ Numerator = 1

Denominator = $2h^{-3} j^{-4} k^{-2}$

So, we have

$\dfrac{1}{2h^{-3} j^{-4} k^{-2}} = \dfrac{h^3 j^4 k^2}{2}$ $\qquad \because a^{-m} = \dfrac{1}{a^m}$

24. (d) By folding the given pattern we get this shape.

25. (a) Consider, $\dfrac{(2m^{-1} pq^0)^{-4} \cdot 2m^{-1} p^3}{2pq_2}$

$= \dfrac{(2^{-4})(m^{-1})^{-4}(p^{-4})(q^0)^{-4} \cdot 2m^{-1} p^3}{2pq^2}$ $\qquad [(a^m)^n = a^{m \cdot n}]$

$= \dfrac{2^{-4} m^4 p^{-4} \cdot 1 \cdot 2m^{-1} p^3}{2pq^2}$ $\qquad [a^0 = 1]$

$= \dfrac{m^3}{2^4 p^2 q^2} \quad$ $\left[\because a^{-m} = \dfrac{1}{a^m}, \dfrac{a^m}{a^n} = a^{m-n}, a^m \cdot a^n = a^{m+n}\right]$

$= \dfrac{m^3}{16 p^2 q}$

26. (d) Consider DCB,

$\angle a + \angle b + \angle DCB = 180°$

$\Rightarrow \angle a + \angle b + 63° = 180° \Rightarrow$
$\angle a + \angle b = 117°$

Also, $\angle b = 63°$ [$\because DC = DB$]

$\Rightarrow \angle a = 54°$

In DAB, $DB = DA$

$\Rightarrow \qquad\qquad \angle d = \angle BAD$

$\Rightarrow \qquad\qquad \angle d = 63°$

$\therefore \qquad\qquad \angle e = 54°$ $\qquad$ [as done above]

Also, $\qquad CB \parallel FE$

$\Rightarrow \qquad\qquad \angle b = \angle g$ $\qquad$ [alternate angles]

$\Rightarrow \angle g = 63°$

Also, $\qquad\qquad DF = DE$

$\Rightarrow \angle g = \angle h \therefore \angle h = 63°$

In DFE,

$\qquad \angle f + \angle g + \angle h = 180°$

$\Rightarrow \qquad \angle f + 63° + 63° = 180°$

$\Rightarrow \qquad\qquad \angle f = 54°$

Now, $\angle CDF + \angle CDB = 180°$ $\qquad$ [linear pair]

$\Rightarrow \qquad \angle CDF + 54° = 180°$

$\Rightarrow \qquad\qquad \angle CDF = 126°$

Similarly,

$\angle e + \angle f + \angle ADE = 180°$ $\qquad$ [linear pair]

$\Rightarrow 54° + 54° + \angle ADE = 180°$

$\Rightarrow \qquad\qquad \angle ADE = 72°$

$\therefore \qquad \angle CDF + \angle ADE = 126° + 72° = 198°$

27. (b) Opening the given cube we get this net.

28. (b) Given, $S_n = \dfrac{n}{2}\{2a + (n-1)d\}$

Here, $n = 10$, $a = 6$ and $d = 4$

$\therefore S_{10} = \dfrac{10}{2}\{2 \cdot 6 + (10-1)4\} = 5\{12 + 36\} = 240$

29. (d) I. Supplement of $80° = 180° - 80° = 100°$

II. Complement of $80° = 90° - 80° = 10°$

III. Hypotenuse

IV. Rectangle

30. (a) The given net folds to form the figure given in this cube.