



Group - A

Answer all questions.

A. Multiple Choice Questions:

[1X5 = 5]

1. Which number is both a perfect square and perfect cube

- a. 125
- b. 100
- c. 64
- d. 512

2. The value of $b-a-8$ when $b=-3$ and $a=-11$ is

- a. -22
- b. 16
- c. 0
- d. -16

3. A constant is a polynomial of degree

- a. 1
- b. 0
- c. Cannot be determine
- d. None of these

4. The number of lines passing through five points such that no three of them are collinear is

- a. 12
- b. 15
- c. 10
- d. 5

5. Which type of angles are always equal

- a. Adjacent
- b. Complementary
- c. Supplementary
- d. Vertically Opposite

B. Fill in the blanks.

[1X5 = 5]

1. The degree of $2x^2 + xyz + 3y^3$ is _____.
2. The cube of -40 is _____.
3. Two lines lying in a plane are _____ if they are not parallel to each other.
4. 250% of a right is a/an _____ angle.
5. Angles of 30° and 150° are _____ angles.

C. State True or False.**[1X5 = 5]**

1. $4^5 = 1024$
2. The degree of 10 is 0.
3. $8^5 \div 8^2 = 8^{5/2}$.
4. Two adjacent angles are always supplementary.
5. The surface of water in a swimming pool, when calm, represents a plane.

Group - B**D. Simplify:****[2X 5 = 10]**

1. $4^8 \div 4^6 \times 4$
2. $|16-4| \div |-3|$
3. $-68 \div (-17)$
4. $20000 - 9999$
5. $(-18) \times (-14) \times (-12)$.

E. Answer any five:**[3X 5 = 15]**

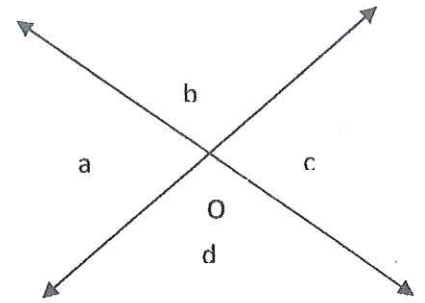
1. Simplify: $(-4)^3 \times (-\frac{1}{4})^3 \times (-3)^4$
2. Find the value of $(5^{30} \times 5^{20}) \div (5^4)^5$.
3. If $x=3$ and $z = 5$, find the value of $\frac{x^2}{9} + \frac{z^2}{25}$
4. Write down the algebraic expression whose terms are: $\frac{1}{2}x^2, -\frac{5}{7}xy, 5y^2, 6$.
5. Subtract $37^\circ 48' 37''$ from $83^\circ 24' 13''$
6. State the types of angles between North and South-East and North and North-East.
7. Using a protractor, draw the angle of 70° and 125° .

Group - C**F. Answer any eight (8).****[8X 5 = 40]**

1. Which is greater $3^2 \times (-1)^{35} (-10)^3$ or $\frac{3}{2} \times (-20)^3$.
2. Simplify: $-(-6)^3 + (-5)^4 - (2^3)^2 \times 10^2 \times (\frac{28}{39})^0$.
3. Identify binomial or trinomial or monomial from the expression and write the degree of the expressions $a^2+4abc+b^3c$ and $5+x^3$
4. Evaluate $(-5)^3 \times (-2)^4 \times (-10)^7 \div \{(-10)^2\}^3$
5. If $p = 6$ and $q = 2$ then find $\frac{p+6q}{5p-3q}$ and $p^2 + 2pq+q^2$

6. Subtract $37^{\circ} 48' 37''$ from $83^{\circ} 24' 13''$
7. What is the time on the clock when the hour hand moves clockwise
 - (a) 60° from 6 O' clock
 - (b) 270° from 12 O' clock
8. Angle A has a measure of 19° . Determine the measure of angle B if the two angles are
 - (a) Complementary
 - (b) Vertically Opposite
9. Using the outer scale of protractor draw 65° and 142° .
10. In the given figure below, two straight lines intersect at O. Copy and complete the following table.

SL.No	$\angle a$	$\angle b$	$\angle c$	$\angle d$
1	25°			
2		80°		
3			140°	
4				116°





Sub: Algebra and Geometry

Class: VI - Solution

F. M: 80

Duration: 2.5 hours

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Group - A

Answer all questions.

A. Multiple Choice Questions:**[1X5 = 5]**

1. Which number is both a perfect square and perfect cube

- a. 125 b. 100
c. 64 d. 512

2. The value of $b-a-8$ when $b=-3$ and $a=-11$ is

- a. -22 b. 16
c. 0 d. -16

3. A constant is a polynomial of degree

- a. 1 b. 0
c. Cannot be determine d. None of these

4. The number of lines passing through five points such that no three of them are collinear is

- a. 12 b. 15
c. 10 d. 5

5. Which type of angles are always equal

- a. Adjacent b. Complementary
c. Supplementary d. Vertically Opposite

B. Fill in the blanks.**[1X5 = 5]**

- The degree of $2x^2 + xyz + 3y^3$ is 3.
- The cube of -40 is -64000.
- Two lines lying in a plane are intersecting if they are not parallel to each other.
- 250% of a right is a/an reflex angle.
- Angles of 30° and 150° are supplementary angles.

C. State True or False.**[1X5 = 5]**

1. $4^5 = 1024$ **TRUE**
2. The degree of 10 is 0. **FALSE**
3. $8^5 \div 8^2 = 8^{5/2}$. **FALSE**
4. Two adjacent angles are always supplementary. **FALSE**
5. The surface of water in a swimming pool, when calm, represents a plane. **TRUE**

Group - B**D. Simplify:****[2X 5 = 10]**

1. $4^8 \div 4^6 \times 4 = 4^{8-6+1} = 4^3 = 64$
2. $|16-4| \div |-3| = 12/3 = 4$
3. $-68 \div (-17) = 4$
4. $20000 - 9999 = 10,001$
5. $(-18) \times (-14) \times (-12) = -3024$

E. Answer any five:**[3X 5 = 15]**

1. Simplify: $(-4)^3 \times (-\frac{1}{4})^3 \times (-3)^4 = (-3)^4 = 81$
2. Find the value of $(5^{30} \times 5^{20}) \div (5^4)^5 = 5^{30+20} \div 5^{20} = 5^{30+20-20} = 5^{30}$
3. If $x=3$ and $z = 5$, find the value of $\frac{x^2}{9} + \frac{z^2}{25} = \frac{3^2}{9} + \frac{5^2}{25} = \frac{9}{9} + \frac{25}{25} = 1+1 = 2$
4. Write down the algebraic expression whose terms are: $\frac{1}{2}x^2, -\frac{5}{7}xy, 5y^2, 6$.

$$\frac{1}{2}x^2 - \frac{5}{7}xy + 5y^2 + 6$$

5. Subtract $37^\circ 48' 37''$ from $88^\circ 24' 13''$

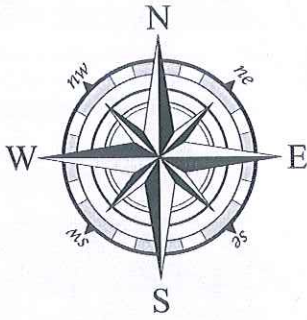
Bringing 1° and $1'$ so that

$$13'' + 1' = 73''$$

$$23' + 1^\circ = 83'$$

$$\text{Therefore, } 87^\circ 83' 73'' - 37^\circ 48' 37'' = 50^\circ 35' 36''$$

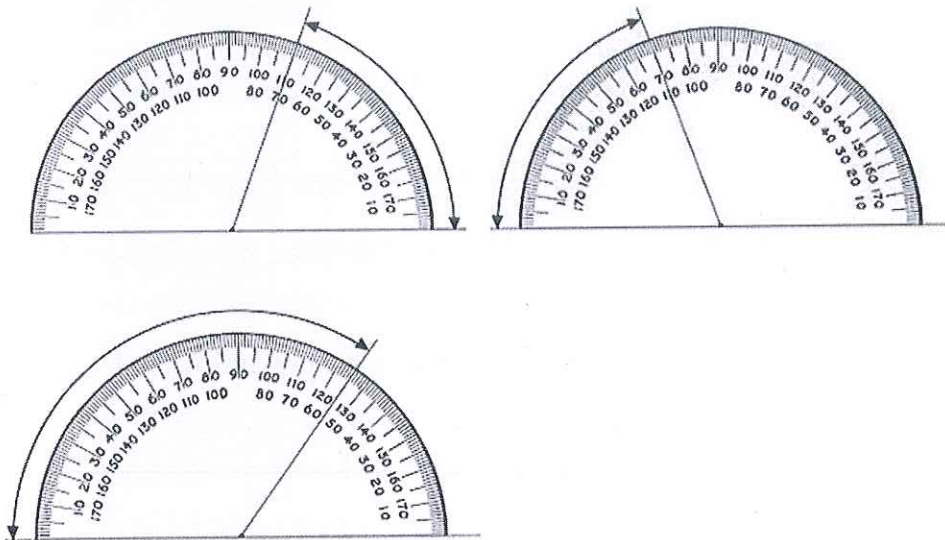
6. State the types of angles between North and South-East and North and North-East.



North and South-East = Obtuse angle

North and North-East = Acute Angle

7. Using a protractor, draw the angle of 70° and 125° .



Group - C

F. Answer any eight (8).

[8X 5= 40]

1. Which is greater $3^2 \times (-1)^{35} \times (-10)^3$ or $\frac{3}{2} \times (-20)^3$.

$$\text{Ans: } 3^2 \times (-1)^{35} \times (-10)^3 = 9 \times (-1) \times (-1000) = 9000$$

$$\frac{3}{2} \times (-20)^3 = \frac{3}{2} \times (-8000) = -12000$$

So, $3^2 \times (-1)^{35} \times (-10)^3$ is greater than $\frac{3}{2} \times (-20)^3$

2. Simplify: $-(-6)^3 + (-5)^4 - (2^3)^2 \times 10^2 \times \left(\frac{28}{39}\right)^0$.

$$\text{Ans: } 216 + 625 - 64 \times 100 \times 1 = 841 - 6400 = -5559$$

3. Identify binomial or trinomial or monomial from the expression and write the degree of the expressions $a^2+4abc+b^3c$ and $5+x^3$

$a^2+4abc+b^3c$: trinomial, degree= 4

$5+x^3$: binomial, degree = 3

4. Evaluate $(-5)^3 \times (-2)^4 \times (-10)^7 \div \{(-10)^2\}^3$
 $\Rightarrow (-5)^3 \times (-2)^4 \times (-10)^7 \div (-10^6)$
 $\Rightarrow (-5)^3 \times (-2)^4 \times (-10)^{7-6}$
 $\Rightarrow (-125) \times (16) \times (-10)$
 $\Rightarrow 20000$

5. If $p = 6$ and $q = 2$ then find $\frac{p+6q}{5p-3q}$ and $p^2 + 2pq + q^2$

$$\frac{p+6q}{5p-3q} = \frac{6+6 \times 2}{5 \times 6 - 3 \times 2} = \frac{18}{24}$$

$$p^2 + 2pq + q^2 = 6^2 + 2 \times 6 \times 2 + 2^2 = 36 + 24 + 4 = 64$$

6. Subtract $37^\circ 48' 37''$ from $83^\circ 24' 13''$

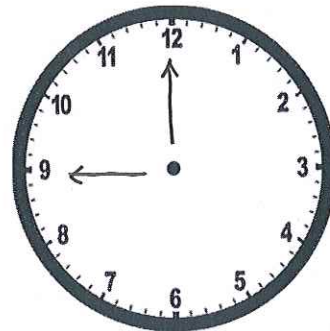
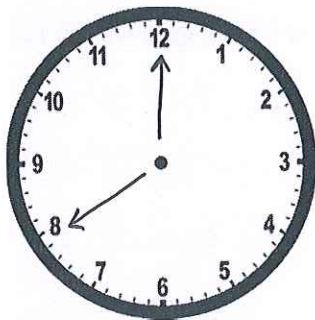
Bringing 1° and $1'$ so that

$$13'' + 1' = 73''$$

$$23' + 1^\circ = 83'$$

$$\text{Therefore, } 82^\circ 83' 73'' - 37^\circ 48' 37'' = 45^\circ 35' 36''$$

7. What is the time on the clock when the hour hand moves clockwise
(a) 60° from 6 O' clock (b) 270° from 12 O' clock



- (a) 60° from 6 O' clock = 8 O' clock (b) 270° from 12 O' clock = 9 O' clock

8. Angle A has a measure of 19° . Determine the measure of angle B if the two angles are

(a) Complementary (b) Vertically Opposite

(a) If two angles are complementary then

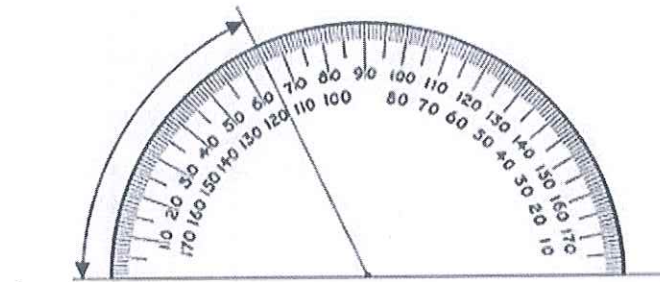
$$19^\circ + \angle b = 90^\circ$$

$$\angle b = 90 - 19 = 71^\circ$$

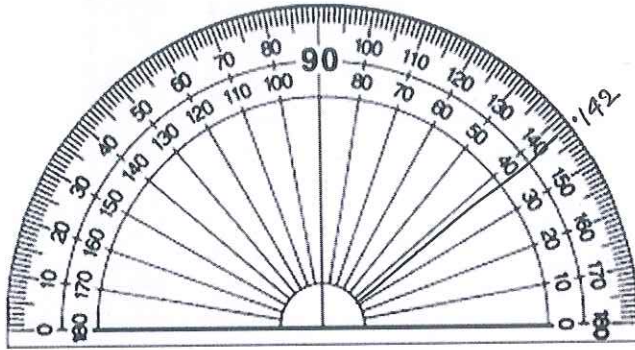
(b) If two angles are vertically opposite, then

$$\angle b = 19^\circ$$

9. Using the outer scale of protractor draw 65° and 142° .



Ans:



10. In the given figure below, two straight lines intersect at O. Copy and complete the following table.

SL.No	$\angle a$	$\angle b$	$\angle c$	$\angle d$
1	25°	155	25°	155
2	100°	80°	100°	80°
3	140°	40°	140°	40°
4	64°	116°	64°	116°

