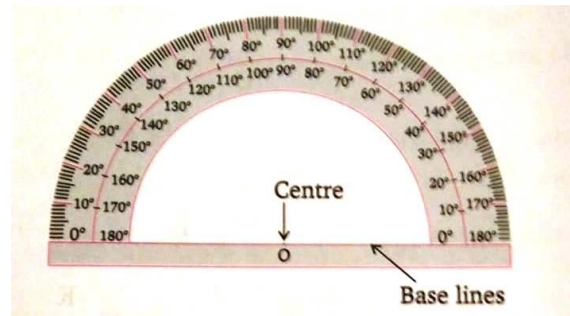


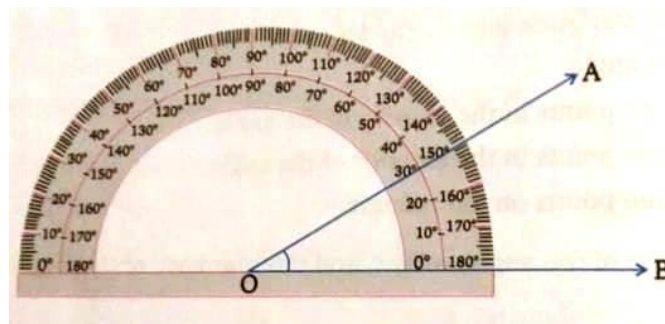
## Protractor :

Protractor is a geometrical instrument used to measure angles. It has two scales of measurements, the inner scale and the outer scale. Angles from 0 degree to 180 degree are marked on both the scales. One scale is read clockwise and the other is read anticlockwise. A protractor is also called Dee as it resembles the shape of letter D.



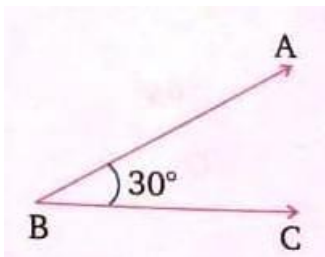
## Measurement of angles:

An angle is measured in degree. The symbol for degree is  $^{\circ}$ . The number of degrees of an angle is called its measure.

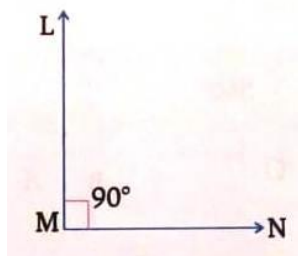


## Types of angles:

**Acute angle:** An angle less than  $90^{\circ}$  is called an acute angle.

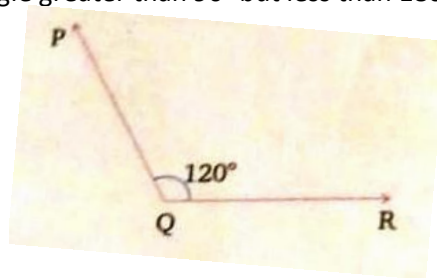


**Right angle:** An angle whose measure is  $90^{\circ}$  is called a right angle.



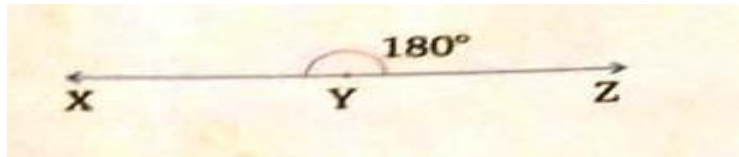
**Obtuse angle:**

An angle greater than  $90^\circ$  but less than  $180^\circ$  is called an obtuse angle.



**Straight angle:**

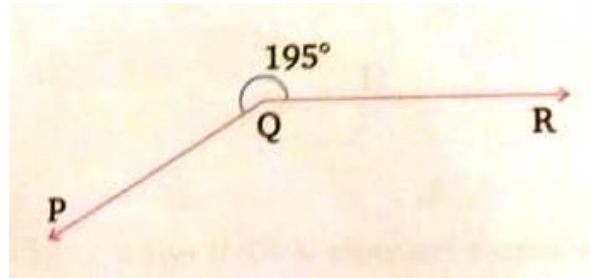
An angle whose measure is  $180^\circ$  is called a straight angle.



1 Straight angle = 2 Right angle

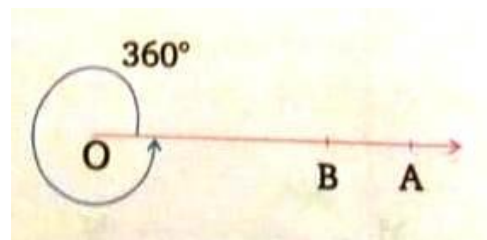
**Reflex angle:**

An angle greater than  $180^\circ$  but less than  $360^\circ$  is called a reflex angle.



**Complete angle:**

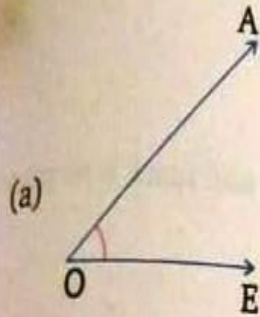
An angle whose measure is  $360^\circ$  is called a complete angle.



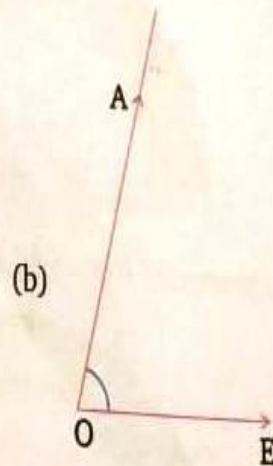
# EXERCISE 7.3

## Exercise-7.3

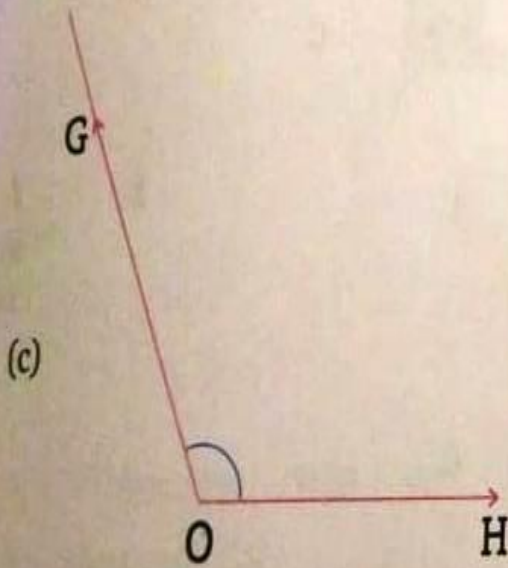
1. Measure the following angles with a protractor :



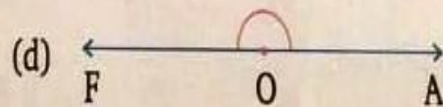
$$m \angle AOB = \underline{45^\circ}$$



$$m \angle AOE = \underline{75^\circ}$$



$$m \angle GOH = \underline{120^\circ}$$



$$m \angle FOA = \underline{180^\circ}$$

## Exercise 7.3

Date

No.

2. Classify these angles according to the measurements:

a.)  $70^\circ \rightarrow$  Acute angle

b.)  $90^\circ \rightarrow$  Right angle

c.)  $40^\circ \rightarrow$  Acute angle

d.)  $180^\circ \rightarrow$  Straight angle

e.)  $135^\circ \rightarrow$  Obtuse angle

f.)  $280^\circ \rightarrow$  Reflex angle

g.)  $165^\circ \rightarrow$  Obtuse angle

h.)  $275^\circ \rightarrow$  Reflex angle

Q3. Define acute, right, obtuse, straight and reflex angles with examples.

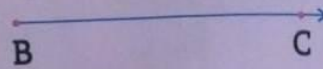
Sol : Already done in explanation. Do not write again.



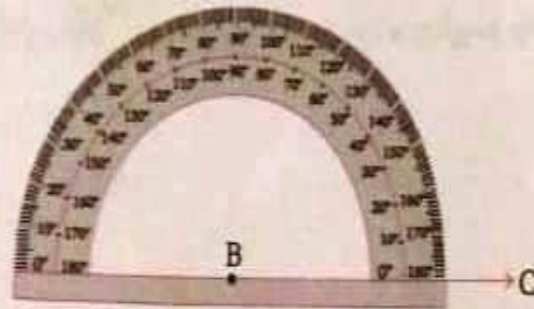
## CONSTRUCTION OF ANGLES WITH A PROTRACTOR

Example 1 : Construct  $\angle ABC = 30^\circ$ .

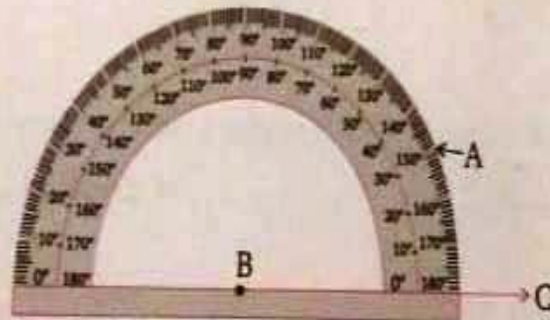
Step 1 : Draw a ray BC.



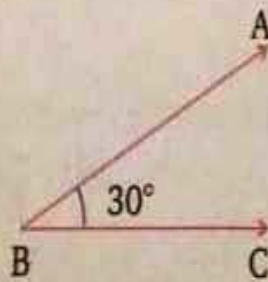
Step 2 : Place the protractor so that its centre is on the point B and baseline is along BC.



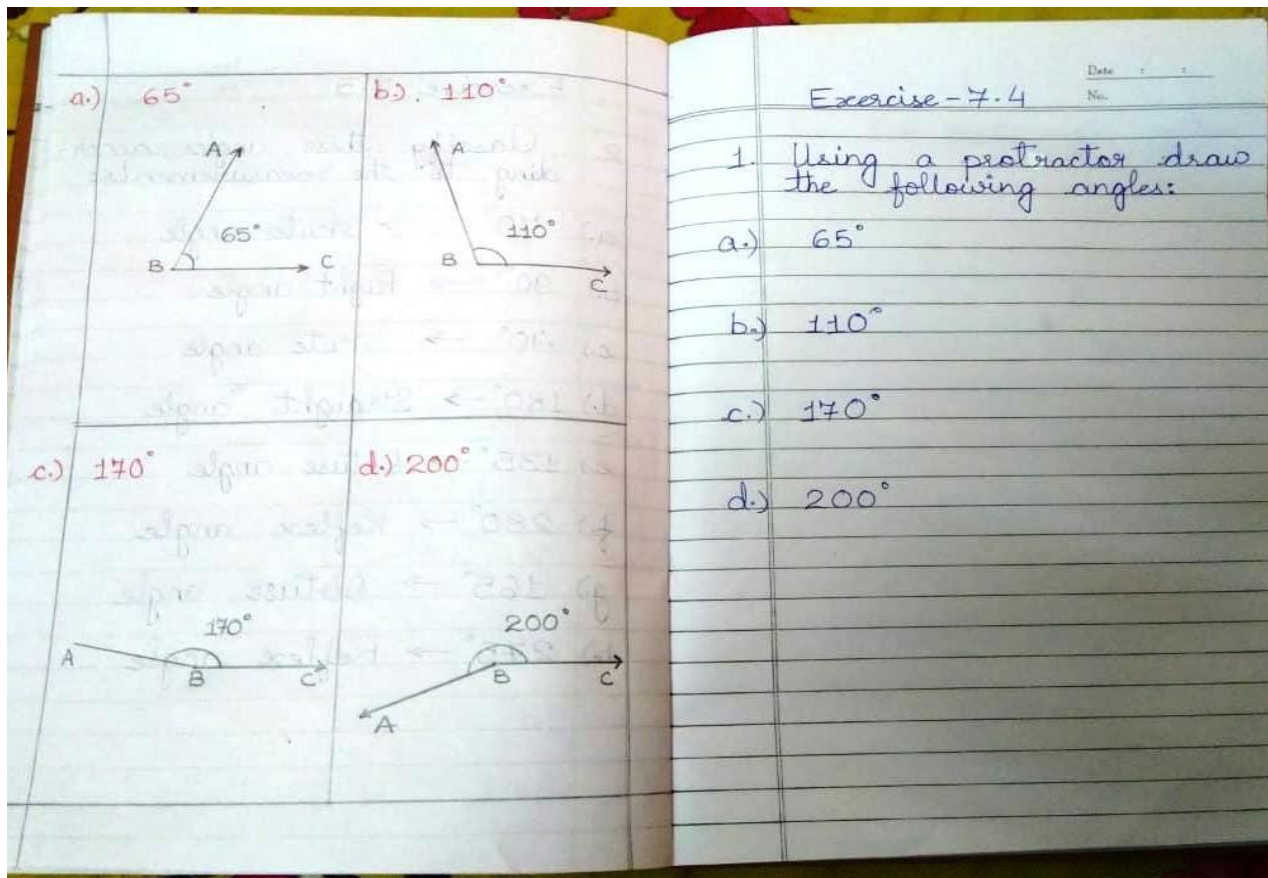
Step 3 : Read  $30^\circ$  on protractor from right to left (anti-clockwise) and mark it as point A.



Step 4 : Draw a ray from B to point A.



Hence, we get  $\angle ABC = 30^\circ$



### Exercise-7.4

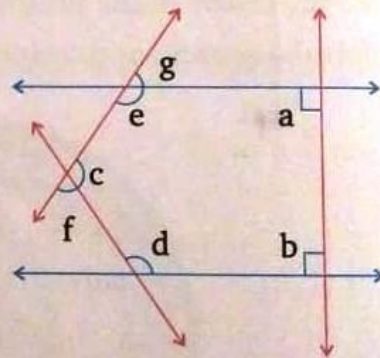


1. Using a protractor draw the following angles :

- |                 |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|
| (a) $65^\circ$  | (b) $45^\circ$  | (c) $85^\circ$  | (d) $110^\circ$ |
| (e) $150^\circ$ | (f) $170^\circ$ | (g) $200^\circ$ | (h) $250^\circ$ |

2. Observe the given figure and classify the angles as acute, obtuse and right angles.

- (a)  $a$  is a right angle.  
 (b)  $b$  is a right angle.  
 (c)  $c$  is an obtuse angle.  
 (d)  $d$  is an obtuse angle.  
 (e)  $e$  is an obtuse angle.  
 (f)  $f$  is an acute angle.  
 (g)  $g$  is an acute angle.





3. Fill in the blanks :

- (a) If the measure of an angle is  $225^\circ$ , then the angle is reflex angle .  
(b) An angle has two arms and one common end point.  
(c) Angles are measured with the help of a protractor.  
(d) The measure of a straight angle is  $180^\circ$ .  
(e) The unit for measuring an angle is degree .

4. Can two acute angles together make a straight angle? Explain.

5. Can two acute angles together make a right angle? Justify.

5.

ii)

$$\angle 1 = 45^\circ, \angle 2 = 45^\circ$$
$$45^\circ + 45^\circ = 90^\circ$$

iii)

$$\angle 1 = 60^\circ, \angle 2 = 30^\circ$$
$$60^\circ + 30^\circ = 90^\circ$$

4. Can two acute angles together make a straight angle? Explain.

Ans:- No, two acute angles cannot make a straight angle because acute angles are less than  $90^\circ$  so, when we will add the highest acute angle that is,  $89^\circ + 89^\circ = 178^\circ$

They will make  $178^\circ$ , that is less than  $180^\circ$ . So, they cannot make a straight angle. We know <sup>that</sup> Straight angle =  $180^\circ$

5. Can two acute angles together make a right angle? Justify.

Ans:- Yes, some of the two acute angles can make a right angle. We have many examples

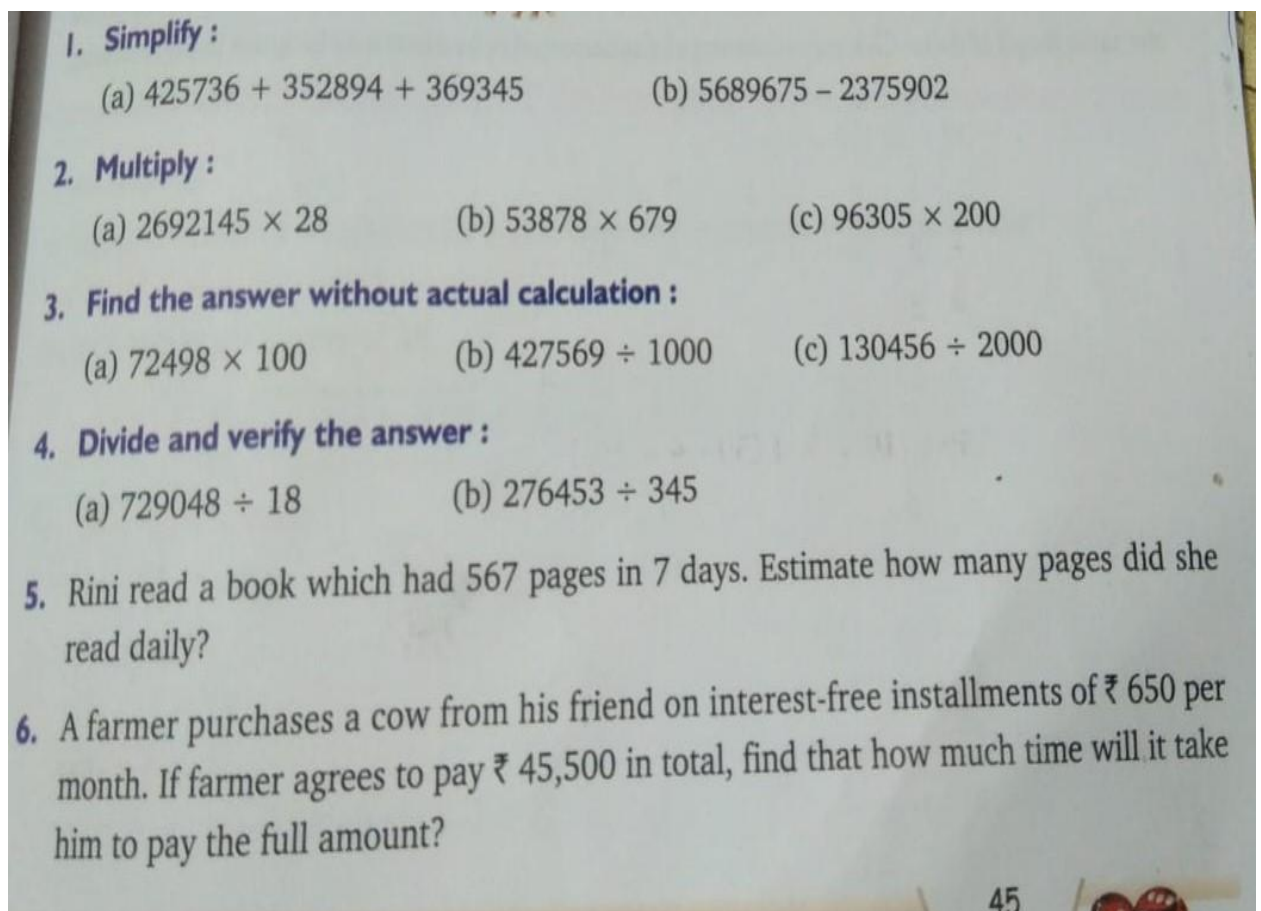
$$\text{Right angle} = 90^\circ$$

i)  $\angle 1 = 40^\circ, \angle 2 = 50^\circ$   
 $40^\circ + 50^\circ = 90^\circ$

## HOLIDAY HOMEWORK ( To be done in Homework Copy)

A. Learn multiplication tables up to 18.

B.



1. **Simplify :**  
(a)  $425736 + 352894 + 369345$                       (b)  $5689675 - 2375902$

2. **Multiply :**  
(a)  $2692145 \times 28$                       (b)  $53878 \times 679$                       (c)  $96305 \times 200$

3. **Find the answer without actual calculation :**  
(a)  $72498 \times 100$                       (b)  $427569 \div 1000$                       (c)  $130456 \div 2000$

4. **Divide and verify the answer :**  
(a)  $729048 \div 18$                       (b)  $276453 \div 345$

5. Rini read a book which had 567 pages in 7 days. Estimate how many pages did she read daily?

6. A farmer purchases a cow from his friend on interest-free installments of ₹ 650 per month. If farmer agrees to pay ₹ 45,500 in total, find that how much time will it take him to pay the full amount?

45



C.

1. Tell how many numbers have exactly :

(a) Two digits      (b) Three digits      (c) Four digits      (d) Five digits

2. Arrange the numbers in descending order by using the symbol (>):

(a) 5760810, 5760081, 5760018, 5876001, 5867001  
(b) 3000303, 3000330, 3000033, 3300003, 3330000  
(c) 1010101, 1010100, 1010111, 1010011, 1010001  
(d) 212121212, 121212121, 221122111, 112211222, 122112212

3. Write the following numbers in words according to the Indian as well as International place value system :

(a) 684104      (b) 505000500      (c) 480808000      (d) 66000000

4. Write the nearest approximate number :

(a)  $5800 + 5499 =$  \_\_\_\_\_  
(b)  $1777 + 1333 =$  \_\_\_\_\_  
(c)  $12000 - 5078 =$  \_\_\_\_\_  
(d)  $2900 - 499 =$  \_\_\_\_\_  
(e)  $49999 + 12397 =$  \_\_\_\_\_

5. Write the equivalent Roman numeral in each box :

(a)  $LXXXVIII + LX =$

(b)  $CXXIX + XL =$

(c)  $CCX - LV =$

(d)  $MDC + XXIV =$

(e)  $MCMXL - CXL =$

6. Fill in the missing digits :

(a)	TC	C	TL	L	TTh	Th	H	T	O
	8	□	5	□	2	□	9	□	7
	-	□	3	□	2	□	0	□	6
	□	3	□	2	□	0	□	6	□
	1	4	3	6	1	4	7	2	3

(b)	TTh	Th	H	T	O
	1	5	□	1	0
	+	□	1	2	□
	□	1	2	□	4
	+	4	7	6	8
	□	7	6	8	□
	9	□	2	2	3

7. Fill in the missing operations +, -, × or ÷ :

- (a)  $153726 \square 150020 = 3706$
- (b)  $334567 \square 103040 = 437607$
- (c)  $567 \square 78 = 44226$
- (d)  $17922 \square 206 = 87$
- (e)  $350 \square 158 = 55300$
- (f)  $637528 \square 10000 = 647528$

8. Simplify the following :

- (a)  $35 - 28 \div 7 \times 6 - 11$
- (b)  $10 \times 8 - 5 + 20 \times 6 - 15 + 48 \div 3 + 24$
- (c)  $(84 \div 14) \times (4 - 3 + 2 + 1) - 10$
- (d)  $(7 + 9) \div (12 - 8) + 4 \text{ of } 1$
- (e)  $25 \div 5 \times 7 + 12 - 3 \times (2 + 4)$
- (f)  $(50 - 2) \times [24 \div (2 + 4)]$

## ACTIVITY WORK

( To be done in a4 size plain paper)

On a dotted grid join dots to form different type of triangles and angles.

By using same procedure as mentioned below you can make different type of angles and triangles.

