

**GEO-A-CC-2-03-P**

**Spatial Variation in Continent or Country-  
level Religious Composition by Divided  
Proportional Circles**

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# INTRODUCTION

- Circles are Two dimensional diagrams consisting of a series of circles proportional in size to the quantities they represent.
- **Compound Circle Diagram/ Pie Diagram:** When the data comprises more than one component within a circle and is proportionately divided into angular segments to show its constituent parts.
- In previous semester, we have learned about pie diagrams with proportional circles. In this semester, the basic objective of this topic is to represent the distribution of various religious communities inhabiting in a country or in a continent in a very simple but effective way.

# Basic Concept

These are used for showing the distribution of religious groups of a country or a continent. A circle is drawn to represent the total population. It is then divided into segments proportional in size to represent various religious groups.

# Advantages

- Display relative proportions of multiple religions of a country
- Size of the circle can be made proportional to the total population it represents
- Summarize a large data set in visual form
- Be visually simpler than other types of graphs
- Permit a visual check of the reasonableness or accuracy of calculations
- Require minimal additional explanation
- Be easily understood due to widespread use

# Disadvantages

- Do not easily reveal exact values
- Many pie charts may be needed to show changes over time
- Fail to reveal key assumptions, causes, effects, or patterns
- Can be easily manipulated to yield false impressions

# Calculation for Religious Composition by Divided Proportional Circles

Prepare Divided Proportional Circles based on the distribution of various religious populations in selected states of India, 2011.

<u>State</u>	<u>Hindu</u>	<u>Muslim</u>	<u>Christian</u>	<u>Sikh</u>	<u>Buddhist</u>	<u>Jain</u>	<u>Other Religious Communities</u>
Andhra Pradesh	6,78,36,651	69,86,856	11,81,917	30,998	32,037	41,846	4,768
Gujarat	4,51,43,074	45,92,854	2,84,092	45,587	17,829	5,25,305	28,698
Haryana	1,86,55,925	12,22,916	27,185	11,70,662	7,140	57,167	1,255
Madhya Pradesh	5,50,04,675	38,41,449	1,70,381	1,50,772	2,09,322	5,45,446	4,09,285
Uttar Pradesh	13,39,79,263	3,07,40,158	2,12,578	6,78,059	3,02,031	2,07,111	9,281
West Bengal	5,81,04,835	2,02,40,543	5,15,150	66,391	2,43,364	55,223	8,95,796

**Step 1: Add all different religious populations in the table to get the total population.**

<b><u>State</u></b>	<b><u>Hindu</u></b>	<b><u>Muslim</u></b>	<b><u>Christian</u></b>	<b><u>Sikh</u></b>	<b><u>Buddhist</u></b>	<b><u>Jain</u></b>	<b><u>Other Religious Communities</u></b>	<b><u>Total Population</u></b>
Andhra Pradesh	6,78,36,651	69,86,856	11,81,917	30,998	32,037	41,846	4,768	7,61,15,073
Gujarat	4,51,43,074	45,92,854	2,84,092	45,587	17,829	5,25,305	28,698	5,06,37,439
Haryana	1,86,55,925	12,22,916	27,185	11,70,662	7,140	57,167	1,255	2,11,42,250
Madhya Pradesh	5,50,04,675	38,41,449	1,70,381	1,50,772	2,09,322	5,45,446	4,09,285	6,03,31,330
Uttar Pradesh	13,39,79,263	3,07,40,158	2,12,578	6,78,059	3,02,031	2,07,111	9,281	16,61,28,481
West Bengal	5,81,04,835	2,02,40,543	5,15,150	66,391	2,43,364	55,223	8,95,796	8,01,21,302

## Step 2: Calculation for radius of circle ( $r = \text{Total Population}/2\pi$ )

<u>State</u>	<u>Total Population</u>	<u><math>r = \text{Total Population}/2\pi</math></u>	<u>Scale:</u> <u>1cm.=25000000</u> <u>unit</u>
Andhra Pradesh	7,61,15,073	12114090.11	0.484563604
Gujarat	5,06,37,439	8059198.722	0.322367949
Haryana	2,11,42,250	3364893.596	0.134595744
Madhya Pradesh	6,03,31,330	9602029.393	0.384081176
Uttar Pradesh	16,61,28,481	26440168.94	1.057606758
West Bengal	8,01,21,302	12751701.26	0.51006805

## Step 3: Calculation for Graphical Scale

<u>Range</u>	<u>Total Population</u>	<u><math>r = \text{Total Population}/2\pi</math></u>	<u>Scale:</u> <u>1cm.=25000000</u> <u>unit</u>
Highest	17,00,00,000	27056340.33	1.082254
Medium	95000000	15119719.59	0.604789
Lowest	20000000	3183098.862	0.127324



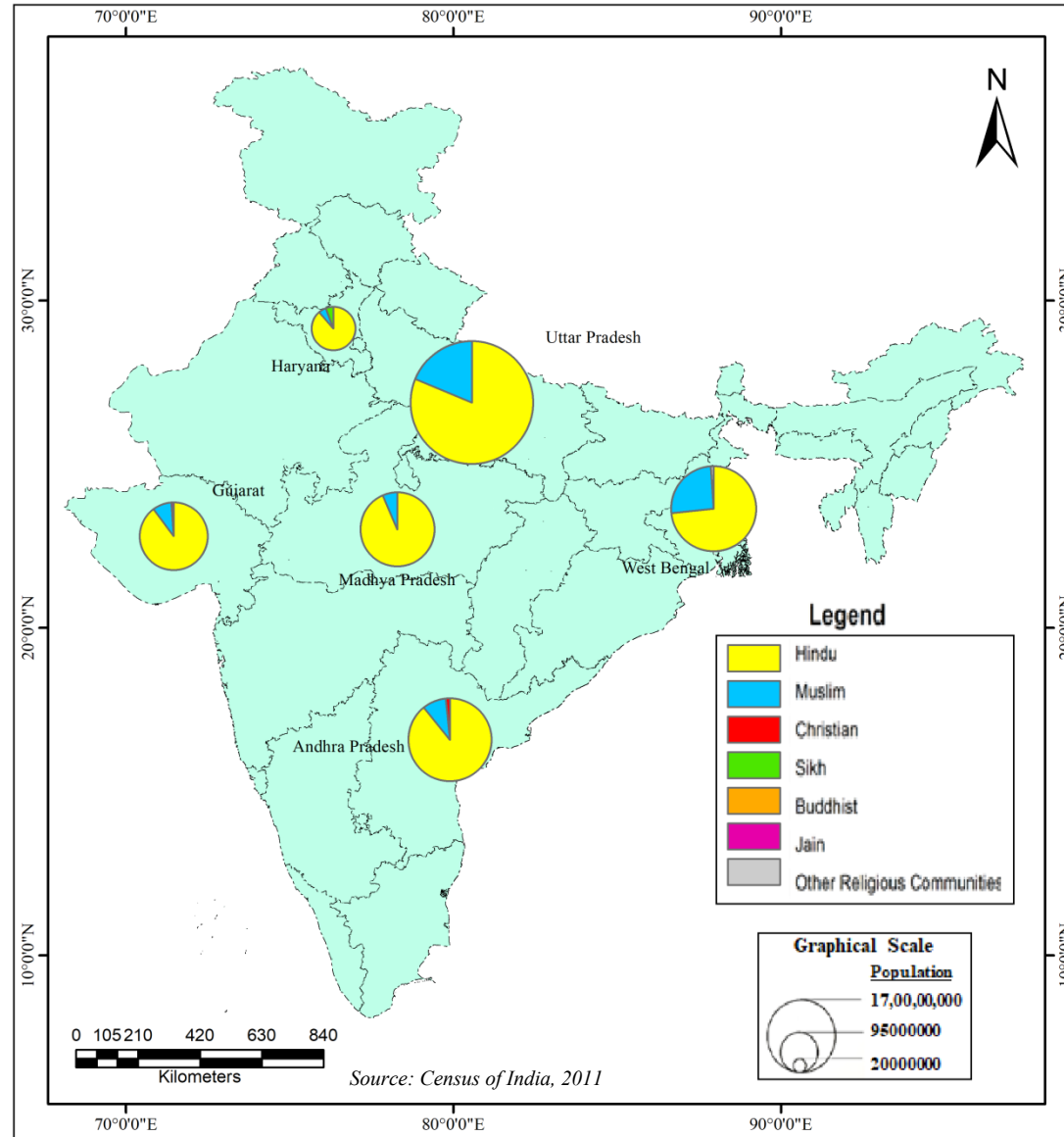
## Step 4: Calculation for division of circle

For Hindu (Andhra Pradesh) =  $(360^\circ * 6,78,36,651) / 7,61,15,073$

$$= \frac{\text{Hindu Population}}{\text{Total Population}} = 320^\circ 50' 44.5428331908''$$

<u>State</u>	<u>Hindu</u>	<u>Muslim</u>	<u>Christian</u>	<u>Sikh</u>	<u>Buddhist</u>	<u>Jain</u>	<u>Other Religious Communities</u>	<u>Total Population</u>
Andhra Pradesh	320°50'44.5428331908"	33°2'44.1554439552"	5°35'24.3245473863"	0°8'47.7983245184556"	0°9'54.8922261429"	0°11'52.505603193732"	0°1'21.1840251404604"	360°
Gujarat	320°56'18.8078421588"	32°39'8.17979637564"	2°1'10.968660164676"	0°19'26.740521770856"	0°7'36.3102806206308"	3°44'4.50456904032"	0°12'14.488329869922"	360°
Haryana	317°39'50.6206766088"	20°49'23.59829251848"	0°27'46.41488015703"	19°56'47.73380316"	0°7'17.675271080418"	0°58'24.28322434935"	0°1'16.930317255732"	360°
Madhya Pradesh	328°12'56.119737456"	22°55'19.61135284116"	1°1'18.368565708"	0°53'58.790061482148"	1°14'56.524641508824"	3°15'16.930755546084"	2°26'32.005082599692"	360°
Uttar Pradesh	290°19'57.8119754208"	66°36'49.84192590084"	0°27'38.361566551614"	1°28'9.667724103264"	0°39'16.201499248044"	0°26'55.712455710708"	0°1'12.4028530664766"	360°
West Bengal	261°4'3322073223480"	90°56'40.36760760588"	2°18'52.7951909718"	0°17'53.905863386994"	1°5'36.527941096116"	0°14'53.25817496076"	4°1'29.924489744328"	360°

DIVIDED PROPORTIONAL CIRCLES  
SHOWING  
THE DISTRIBUTION OF VARIOUS RELIGIOUS  
COMMUNITIES IN SELECTED STATES OF INDIA, 2011



Source: Census of India, 2011

**THANK YOU**