Answer Sheet
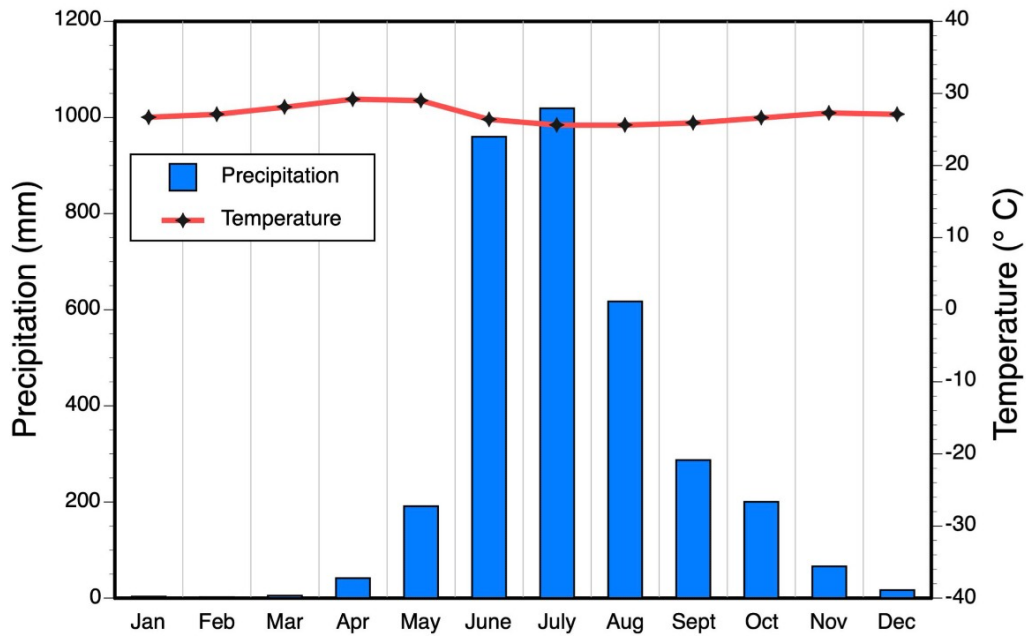
LABORATORY 5: CLASSIFICATION OF GLOBAL CLIMATES

Student Name _____

Student Number _____

QUESTION 1

Mangalore, India - 12.87°N 74.80°E, Elevation 22 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	26.7	27.1	28.1	29.2	29.0	26.4	25.6	25.6	25.9	26.6	27.3	27.1	27.1
Precip mm	3.1	2.2	5.0	41.4	191.2	959.9	1019.1	617.2	287.1	200.3	66.1	16.6	3431.4

1.1) What is Mangalore's Köppen Climate Classification?
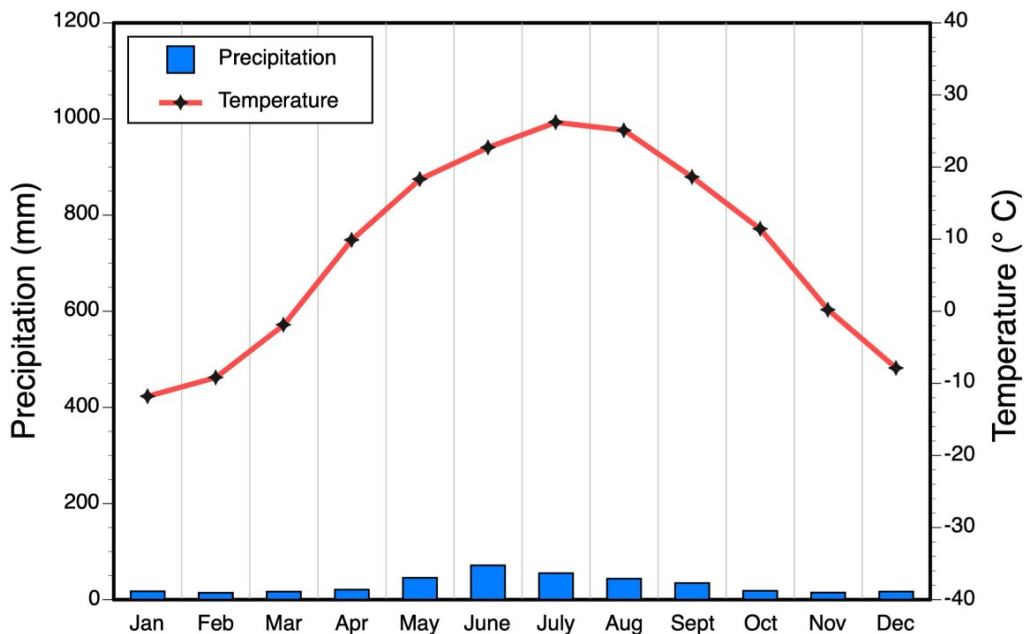
1.2) What climate factors are responsible for Mangalore's wet season (June to August)?

        A Monsoons.
        B Intertropical Convergence Zone.
        C Mid-latitude Cyclones.
        D Hurricances.

1.3) Peak input of solar radiation to this location should occur in June and July. As a result, these months should have the warmest temperatures. Yet the monthly mean temperatures in April and May are warmer. What factor (associated with the rainfall) may be limiting how much solar radiation is being received? Explain.

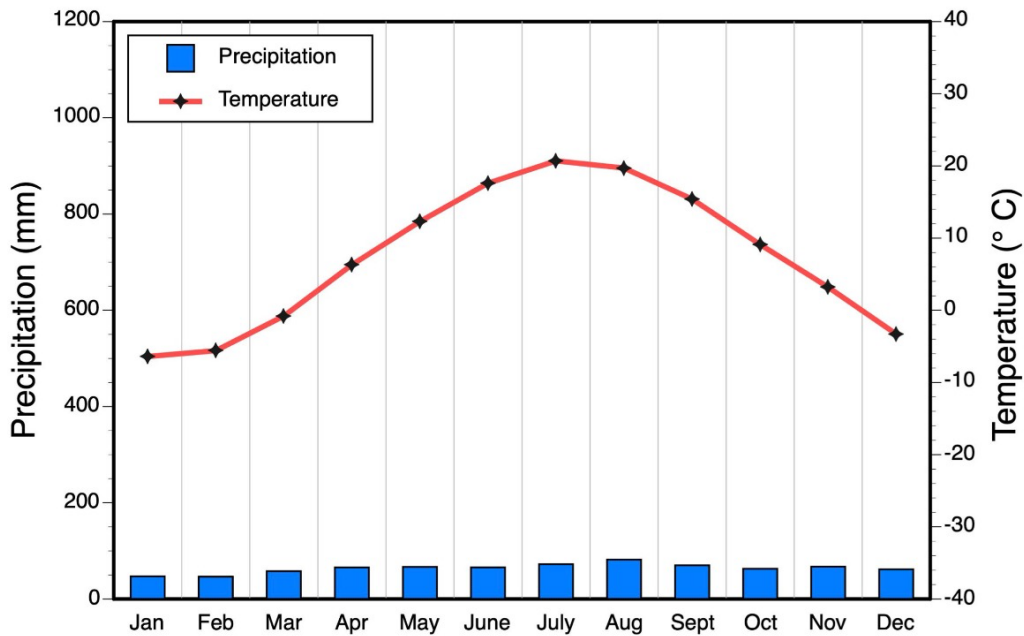**QUESTION 2**

Regina, Canada - 50.40°N 104.60°W, Elevation 577 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	-11.8	-9.2	-1.9	9.9	18.3	22.7	26.2	25.1	18.6	11.4	0.2	-7.9	8.4
Precip mm	17.3	14.2	16.6	20.8	45.4	71.3	55.0	43.6	34.4	18.4	14.7	16.7	373.4

2.1) What is Regina's Köppen Climate Classification?

2.2) Explain the wide range of average monthly temperatures found here.

QUESTION 3

Toronto, Canada - 43.67°N 79.59°W, Elevation 173 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	-6.4	-5.6	-0.8	6.3	12.3	17.6	20.7	19.7	15.4	9.1	3.2	-3.3	7.3
Precip mm	47.1	46.4	57.7	65.6	66.7	65.7	72.3	81.9	70.0	62.9	67.2	61.6	765.5

3.1) Toronto's Köppen Climate Classification?

3.2) What climate factors are responsible for summer (June, July, and August) precipitation in Toronto? (Multiple answers are accepted for this question)
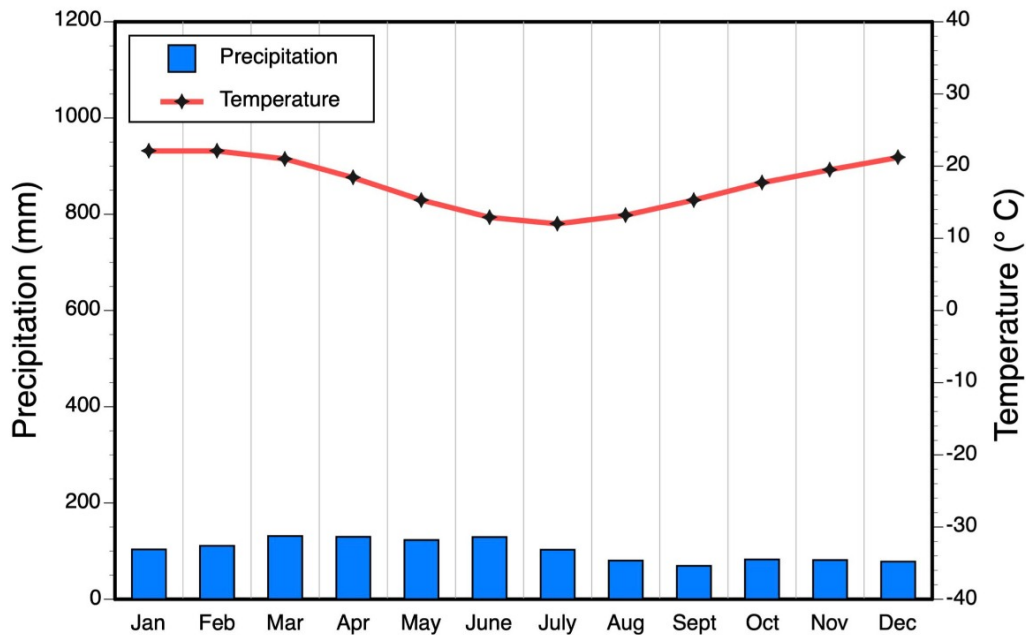
      A Monsoons.
      B Intertropical Convergence Zone.
      C Mid-latitude Cyclones.
      D Thunderstorms.

3.3) What climate factors are responsible for winter (December, January, and February) precipitation in Toronto?

      A Monsoons.
      B Intertropical Convergence Zone.
      C Mid-latitude Cyclones.
      D Thunderstorms.

QUESTION 4

Sydney, Australia - 33.86°S 151.19°E, Elevation 42 m

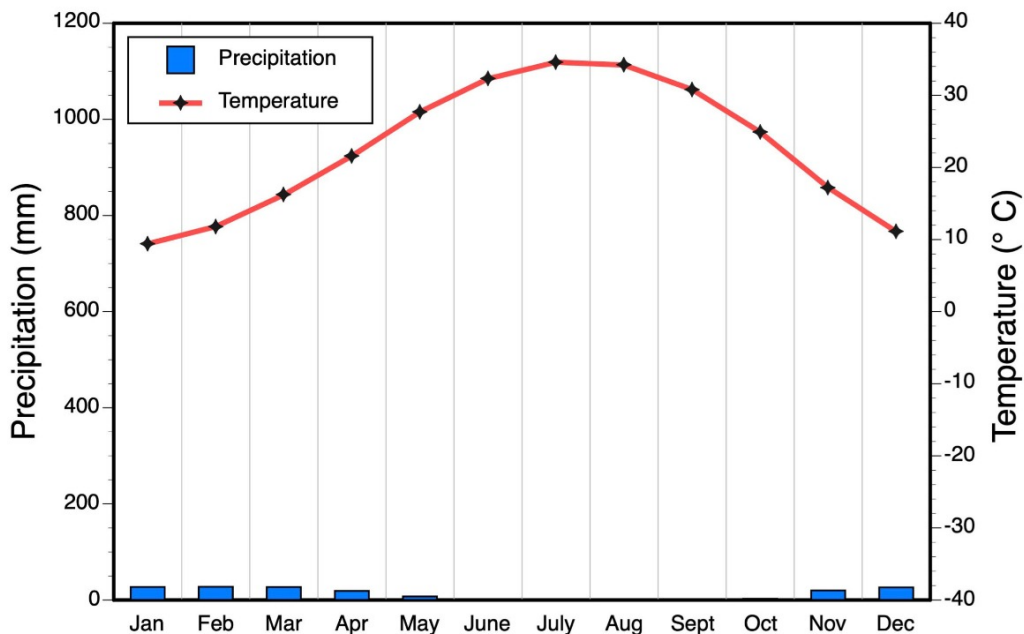|	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	22.1	22.1	21.0	18.4	15.3	12.9	12.0	13.2	15.3	17.7	19.5	21.2	17.6
Precip mm	103.4	111.0	131.3	129.7	123.0	129.2	102.8	80.3	69.3	82.6	81.4	78.2	1222.7

4.1) What is Sydney's Köppen Climate Classification?

4.2) How can we tell from the graph that this location is in the Southern Hemisphere?

4.3) Explain why average monthly temperatures do not vary much throughout the year.

QUESTION 5

Baghdad, Iraq - 33.22°N 44.20°E, Elevation 34 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	9.4	11.8	16.2	21.6	27.7	32.3	34.6	34.2	30.8	24.9	17.2	11.1	22.7
Precip mm	27.1	27.5	26.9	18.8	7.3	0.0	0.0	0.2	0.1	2.6	20.0	26.3	154.8

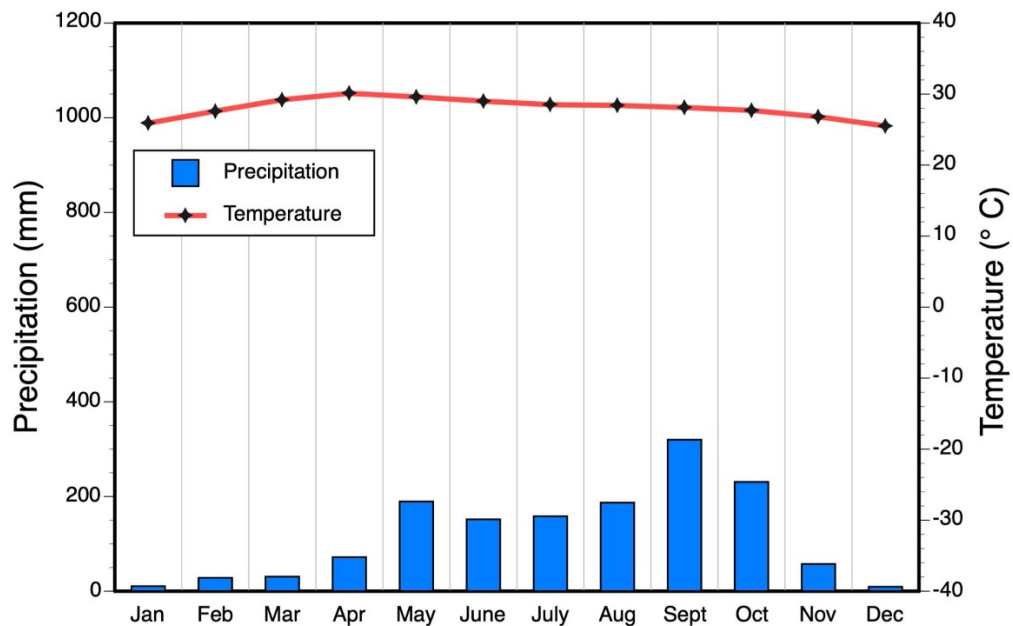**5.1)** What is Baghdad's Köppen Climate Classification?

5.2) Why is it so arid in Baghdad? Is Baghdad a subtropical or mid-latitude desert?

5.3) Which climate factor is responsible for the winter precipitation that falls here?

    A Monsoons.
    B Intertropical Convergence Zone.
    C Mid-latitude Cyclones.
    D Hurricanes.

QUESTION 6

Bangkok, Thailand - 13.73°N 100.50°E, Elevation 2 m

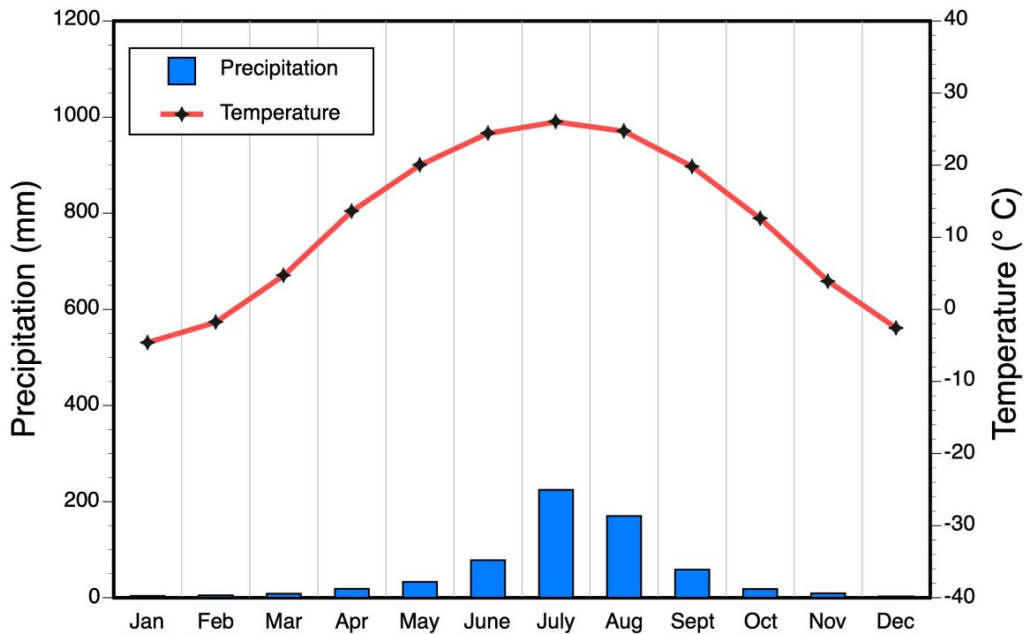|	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	25.9	27.6	29.2	30.1	29.6	29.0	28.5	28.4	28.1	27.7	26.8	25.5	28.1
Precip mm	10.6	28.2	30.7	71.8	189.4	151.7	158.2	187.0	319.9	230.8	57.3	9.4	1466.9

6.1) What is Bangkok's Köppen Climate Classification?

6.2) Which climate factor is responsible for the May to October precipitation that falls here? (Multiple answers are accepted for this question)

      A Monsoons.
      B Intertropical Convergence Zone.
      C Mid-latitude Cyclones.
      D Thunderstorms.

QUESTION 7
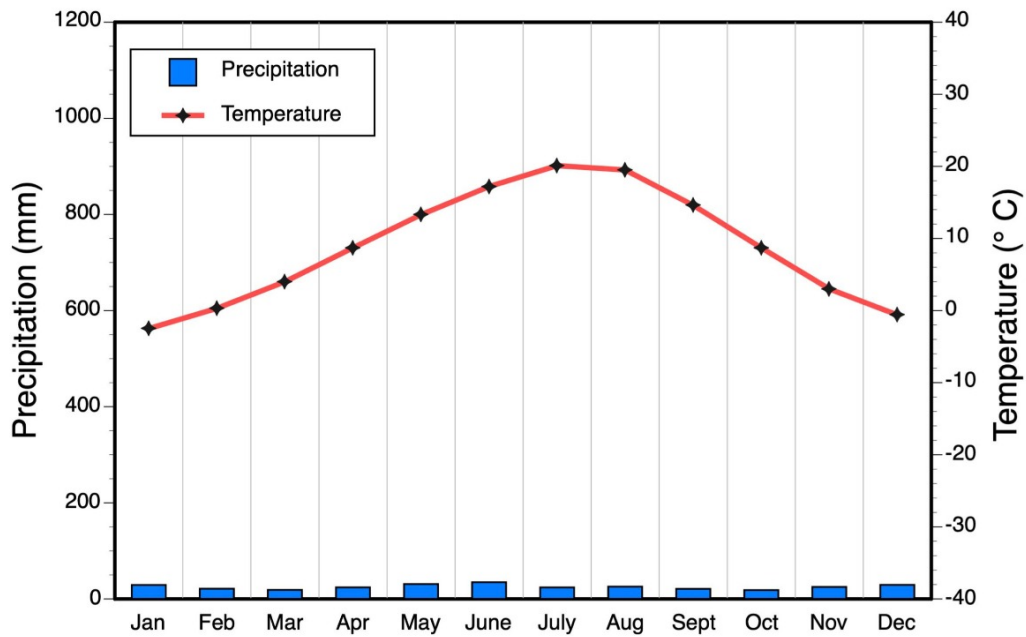

Beijing, China - 39.93°N 116.28°E, Elevation 54 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	-4.6	-1.8	4.7	13.6	20.0	24.4	26.0	24.7	19.8	12.6	3.9	-2.6	11.8
Precip mm	3.9	4.7	8.2	18.4	33.0	78.1	224.3	170.0	58.4	18.0	9.3	2.7	635.3

7.1) What is Beijing's Köppen Climate Classification?

QUESTION 8

Penticton, Canada - 49.47°N 119.60°W, Elevation 344 m

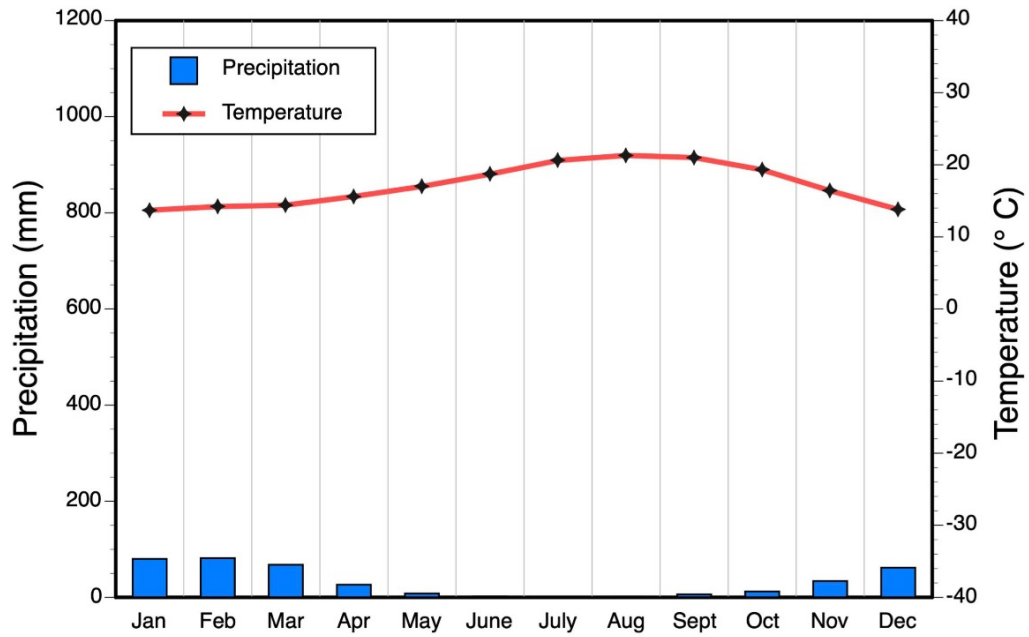|	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	-2.5	0.3	4.0	8.7	13.3	17.2	20.1	19.5	14.6	8.7	3.0	-0.6	8.9
Precip mm	29.1	21.3	18.8	24.0	31.0	34.8	23.9	25.6	21.0	18.4	24.9	29.3	302.7

8.1) What is Penticton's Köppen Climate Classification?

8.2) Why is it so arid (dry) in Penticton?

QUESTION 9

Los Angeles, USA - 33.93°N 118.40°W, Elevation 30 m

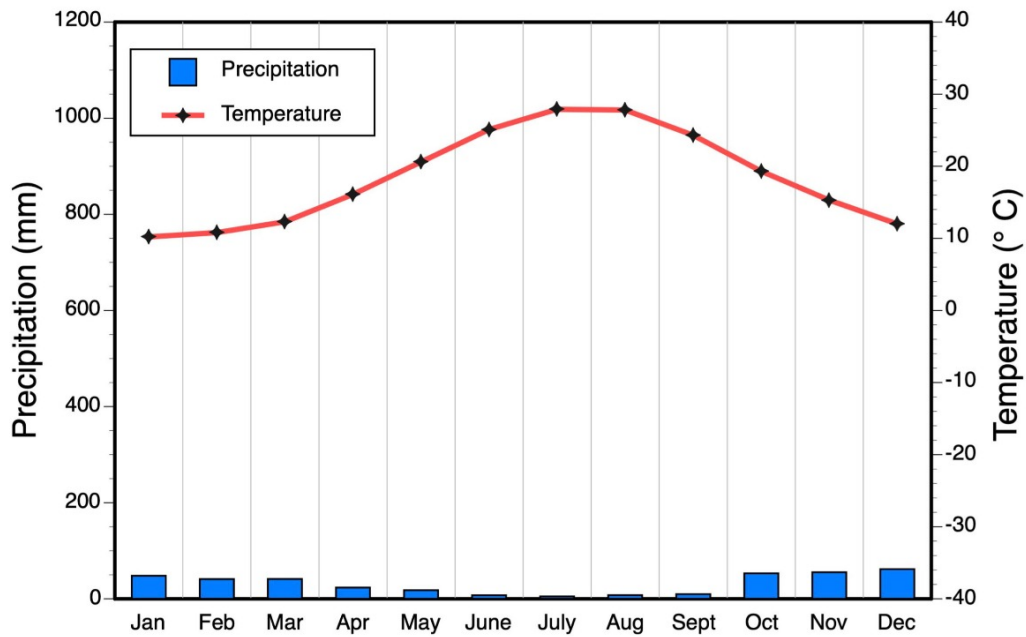|	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	13.7	14.2	14.4	15.6	17.0	18.7	20.6	21.3	21.0	19.3	16.4	13.8	17.2
Precip mm	80.0	81.5	67.8	26.4	7.9	1.8	0.3	1.3	6.1	12.2	34.0	61.7	381.0

9.1) What is the Köppen Climate Classification of Los Angeles?

9.2) Which climate factor is responsible for the November to April precipitation that falls here?

    A Monsoons.
    B Intertropical Convergence Zone.
    C Mid-latitude Cyclones.
    D Thunderstorms.

QUESTION 10
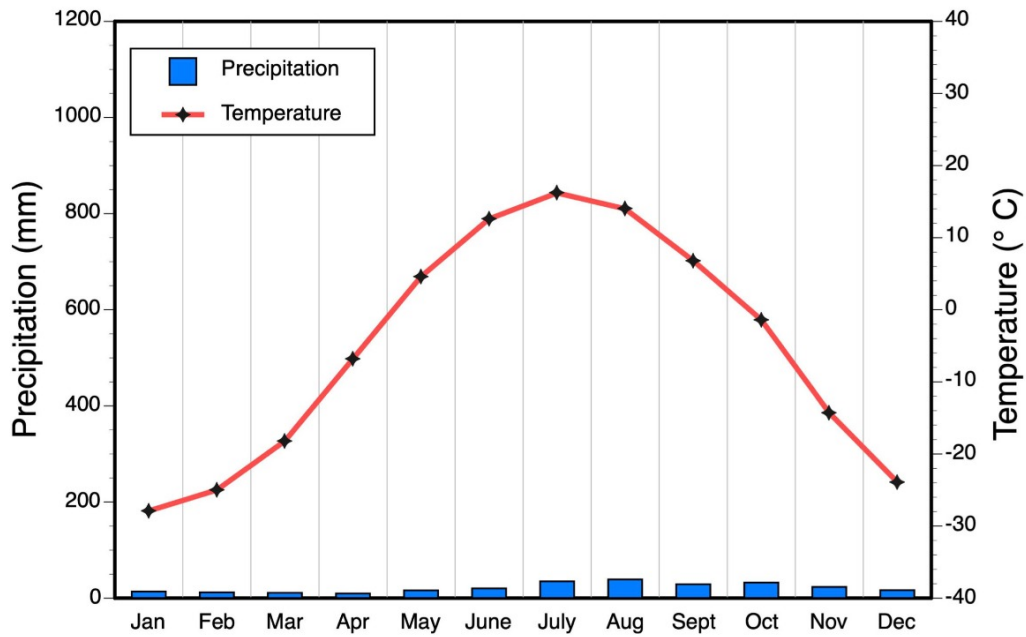

Athens, Greece - 37.90°N 23.70°E, Elevation 28 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	10.2	10.8	12.3	16.1	20.6	25.1	27.9	27.8	24.3	19.3	15.3	12.0	18.5
Precip mm	48.0	41.0	41.2	23.4	17.9	7.4	5.0	7.6	9.8	53.0	55.3	61.8	371.4

10.1) What is the Köppen Climate Classification of Athens?

10.2) What location already examined has a similar climate to Athens? (HINT: it might not have exactly the same classification.)

QUESTION 11

Yellowknife, Canada - 62.47°N 114.40°W, Elevation 205 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	-27.9	-25.0	-18.2	-6.8	4.6	12.6	16.2	14.0	6.8	-1.4	-14.3	-23.9	-5.1
Precip mm	13.7	12.0	11.1	9.7	16.2	20.3	34.9	38.9	28.9	32.4	23.3	16.6	259.5

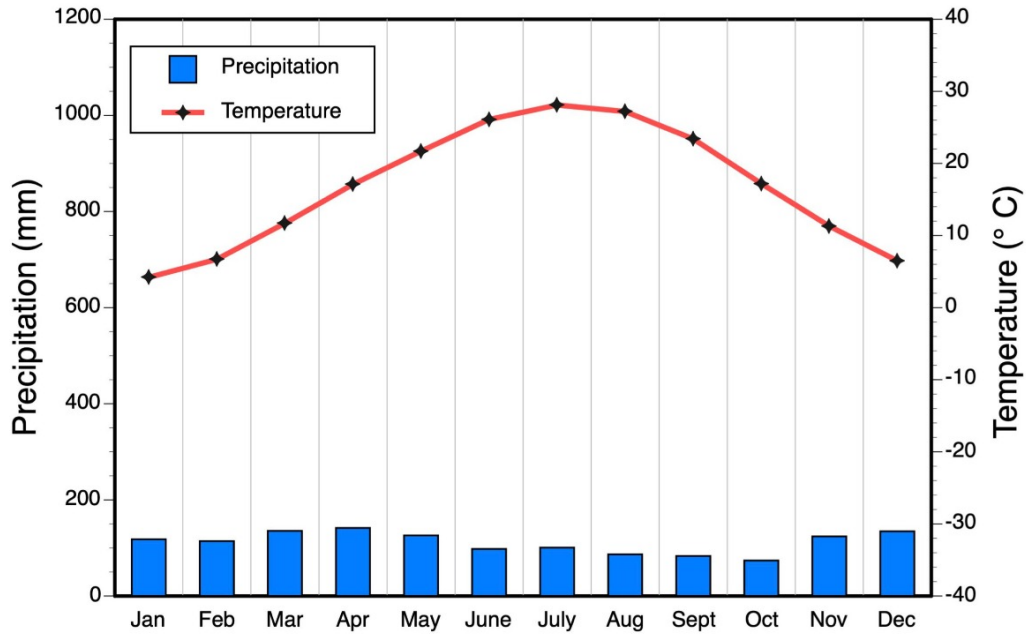**11.1)** What is Yellowknife's Köppen Climate Classification?

11.2) Which climate factor is responsible for the July to October precipitation that falls here?

    A Monsoons.
    B Intertropical Convergence Zone.
    C Mid-latitude Cyclones.
    D Thunderstorms.

11.3) Why is Yellowknife so cold in the winter? What air mass dominates this location in winter?

QUESTION 12

Memphis, USA - 35.05°N 90.00°W, Elevation 80 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	4.2	6.7	11.7	17.1	21.7	26.1	28.1	27.2	23.4	17.2	11.3	6.5	16.8
Precip mm	118.1	114.3	135.5	141.5	126.1	97.9	100.7	86.7	83.3	73.8	123.9	134.6	1337.6

12.1) What is the Köppen Climate Classification of Memphis?

12.2) Which climate factor is primarily responsible for the summer (June to August) precipitation that falls here?
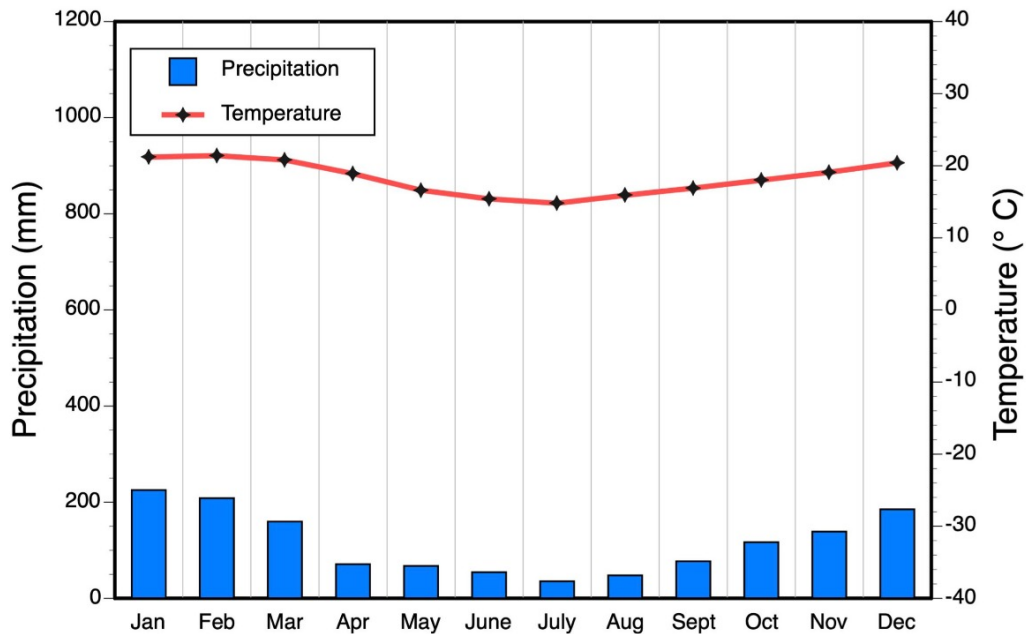
    A Monsoons.
    B Intertropical Convergence Zone.
    C Mid-latitude Cyclones.
    D Thunderstorms.

12.3) Which climate factor is primarily responsible for the winter (December to February) precipitation that falls here?

    A Monsoons.
    B Intertropical Convergence Zone.
    C Mid-latitude Cyclones.
    D Thunderstorms.

QUESTION 13

Sao Paulo, Brazil - 23.50°S 46.60°W, Elevation 802 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	22.1	22.4	21.8	19.7	17.4	16.3	15.8	17.1	17.9	19.0	20.2	21.1	19.2
Precip mm	237.4	221.5	160.5	72.6	71.4	50.1	43.9	39.6	70.7	126.9	145.8	200.7	1441.1

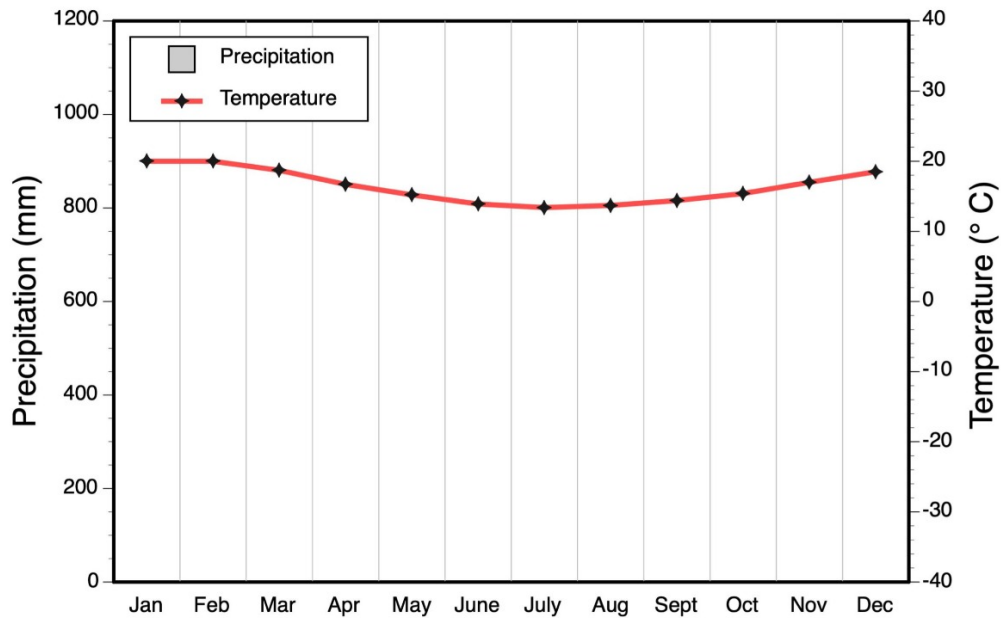**13.1)** What is the Köppen Climate Classification of Sao Paulo?

13.2) Which climate factor is responsible for the October to March precipitation that falls here?

    A Monsoons.
    B Intertropical Convergence Zone and thunderstorms.
    C Mid-latitude Cyclones.
    D Hurricanes.

13.3) Why does precipitation decreases from April to September?

QUESTION 14

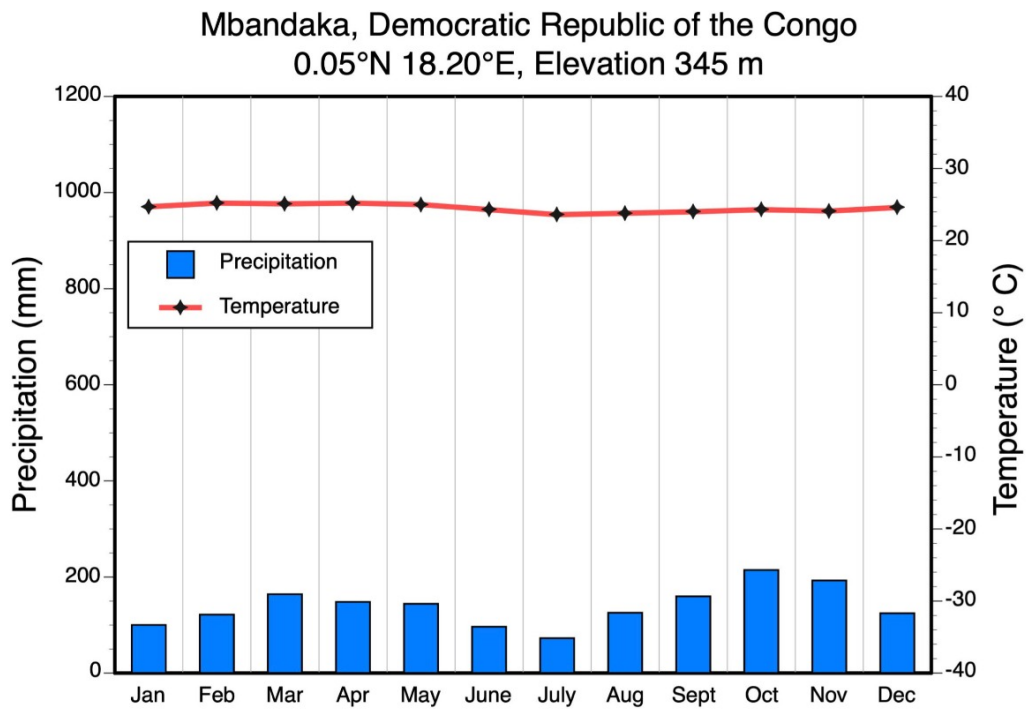## Antofagasta, Chile - 23.43°S 70.40°W, Elevation 122 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	20.0	20.0	18.7	16.7	15.2	13.9	13.4	13.7	14.4	15.4	17.0	18.5	16.4
Precip mm	0.0	0.0	0.0	0.1	0.0	1.0	0.7	0.5	0.4	0.4	0.0	0.0	3.5

14.1) What is the Köppen Climate Classification of Antofagasta?

14.2) Why is there a lack of precipitation all year long?

QUESTION 15

Mbandaka, Democratic Republic of the Congo
0.05°N 18.20°E, Elevation 345 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	24.7	25.2	25.1	25.2	25.0	24.3	23.6	23.8	24.0	24.3	24.1	24.6	24.5
Precip mm	100.2	121.8	164.2	148.2	144.2	96.3	72.6	125.6	159.8	214.6	192.8	124.6	1648.9

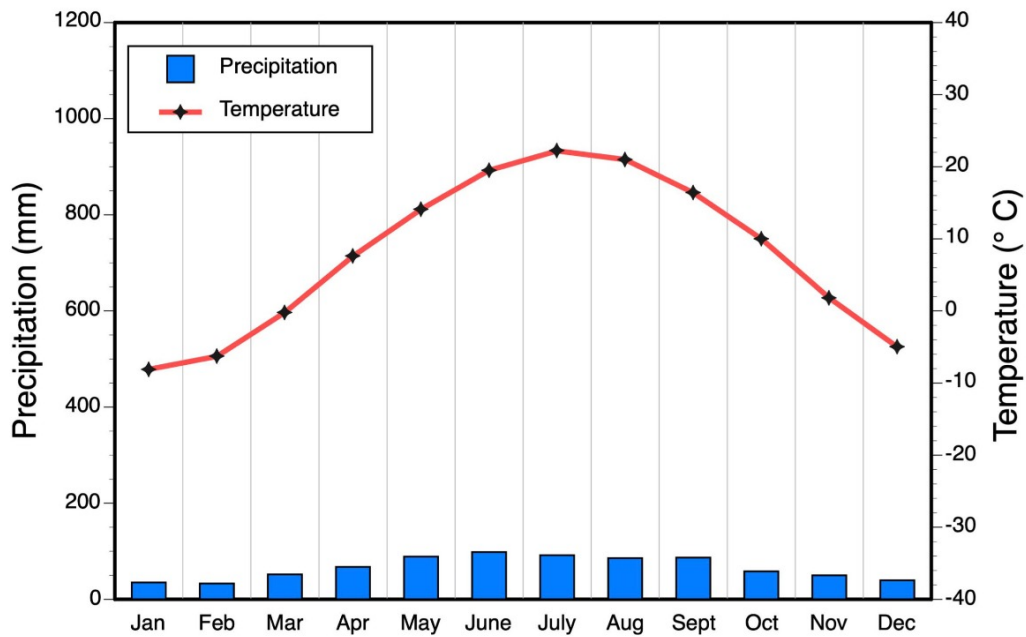**15.1)** What is the Köppen Climate Classification of Mbandaka?

15.2) Why is there so little variation in average monthly temperature at this location?

15.3) Why are the average monthly temperatures so high at this location?

QUESTION 16

Madison, USA - 43.13°N 89.30°W, Elevation 263 m

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temp °C	-8.1	-6.3	-0.2	7.6	14.1	19.5	22.2	21.0	16.4	10.0	1.8	-5.0	7.7
Precip mm	35.0	32.9	51.8	67.4	88.8	98.3	91.8	85.8	86.7	58.1	49.9	39.6	786.3

16.1) What is the Köppen Climate Classification of Madison?

16.2) Which climate factor is primarily responsible for the summer (June to August) precipitation that falls here?

    A Monsoons.
    B Intertropical Convergence Zone.
    C Mid-latitude Cyclones.
    D Thunderstorms.

16.3) Which climate factor is primarily responsible for the winter (December to February) precipitation that falls here?

        A Monsoons.
        B Intertropical Convergence Zone.
        C Mid-latitude Cyclones.
        D Thunderstorms.