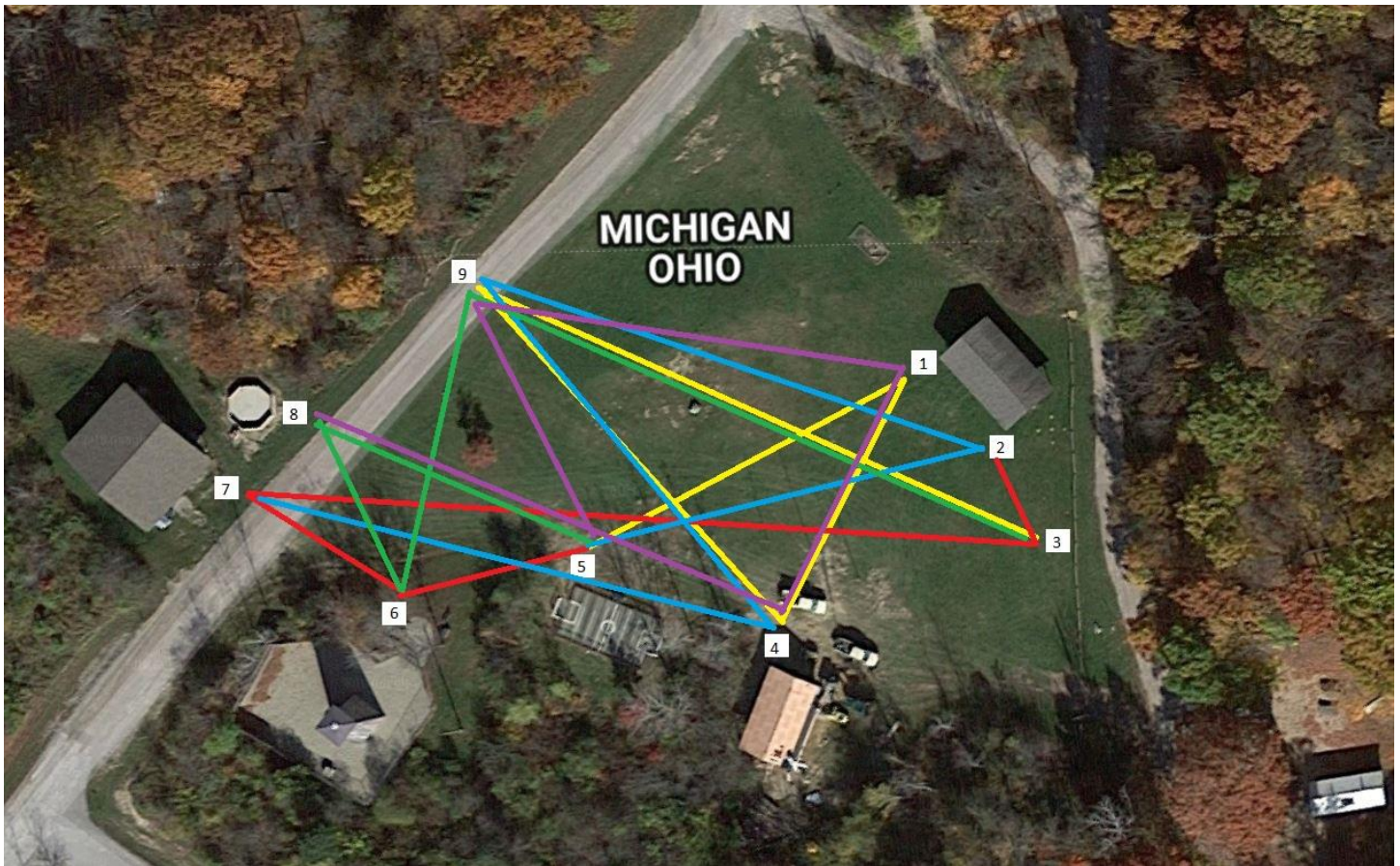


COSA Area Compass & GPS Course **Answer Sheet**



Instructions: This course has 5 separate instruction sheets for use with a compass or a GPS.

All courses start at the corner of the human foosball course to avoid spaces where merit badges are taught during summer camp. Please remind the user that the metal posts of the human foosball course may impact the position of their compass needle.

The user will start at marker #5. They will determine their direction and then walk the distance needed to get to the next point. They will then write the station number where they arrived on their worksheet. Once they repeat this 4 times, they will add the station number together to get a final number, which is the final answer.

Course #1 (YELLOW) $5 + 1 + 4 + 9 + 3 = \mathbf{22}$

Course #2 (RED) $5 + 6 + 7 + 3 + 2 = \mathbf{23}$

Course #3: (BLUE) $5 + 2 + 9 + 4 + 7 = \mathbf{27}$

Course #4 (GREEN) $5 + 8 + 6 + 9 + 3 = \mathbf{31}$

Course #5 (PURPLE) $5 + 9 + 1 + 4 + 8 = \mathbf{27}$

COSA - Orienteering & GPS Course**Pioneer Scout Reservation****Distance between points**

	1	2	3	4	5	6	7	8	9
1	0	40	100	159	198	280	339	311	237
2	40	0	60	142	210	290	360	336	268
3	100	60	0	132	222	305	392	370	314
4	159	142	132	0	120	190	292	280	257
5	198	210	222	120	0	87	175	156	158
6	280	290	305	190	87	0	120	127	176
7	339	360	392	292	175	120	0	36	138
8	311	336	370	280	156	127	36	0	100
9	237	268	314	257	158	176	138	100	0

COSA Area Compass #1

Start Location: **5**

1st Bearing: 80° @ 198 Feet: Final Destination: _____ 1

2nd Bearing: 220° @ 159 Feet: Final Destination: _____ 4

3rd Bearing: 338° @ 257 Feet: Final Destination: _____ 9

4th Bearing: 120° @ 314 Feet: Final Destination: _____ 3

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area Compass #1

Start Location: **5**

1st Bearing: 80° @ 198 Feet: Final Destination: _____ 1

2nd Bearing: 220° @ 159 Feet: Final Destination: _____ 4

3rd Bearing: 338° @ 257 Feet: Final Destination: _____ 9

4th Bearing: 120° @ 314 Feet: Final Destination: _____ 3

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area Compass #1

Start Location: **5**

1st Bearing: 80° @ 198 Feet: Final Destination: _____ 1

2nd Bearing: 220° @ 159 Feet: Final Destination: _____ 4

3rd Bearing: 338° @ 257 Feet: Final Destination: _____ 9

4th Bearing: 120° @ 314 Feet: Final Destination: _____ 3

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area Compass #2

Start Location: **5**

1st Bearing: 262° @ 87 Feet: Final Destination: _____

2nd Bearing: 330° @ 120 Feet: Final Destination: _____

3rd Bearing: 126° @ 392 Feet: Final Destination: _____

4th Bearing: 342° @ 60 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area Compass #2

Start Location: **5**

1st Bearing: 262° @ 87 Feet: Final Destination: _____

2nd Bearing: 330° @ 120 Feet: Final Destination: _____

3rd Bearing: 126° @ 392 Feet: Final Destination: _____

4th Bearing: 342° @ 60 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area Compass #2

Start Location: **5**

1st Bearing: 262° @ 87 Feet: Final Destination: _____

2nd Bearing: 330° @ 120 Feet: Final Destination: _____

3rd Bearing: 126° @ 392 Feet: Final Destination: _____

4th Bearing: 342° @ 60 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area Compass #3

Start Location: **5**

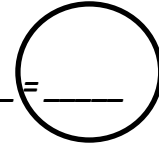
1st Bearing: 78° @ 210 Feet: Final Destination: _____

2nd Bearing: 294 @ 268 Feet: Final Destination: _____

3rd Bearing: 140° @ 257 Feet: Final Destination: _____

4th Bearing: 310° @ 292 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*



COSA Area Compass #3

Start Location: **5**

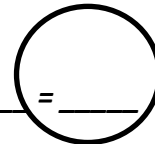
1st Bearing: 78° @ 210 Feet: Final Destination: _____

2nd Bearing: 294 @ 268 Feet: Final Destination: _____

3rd Bearing: 140° @ 257 Feet: Final Destination: _____

4th Bearing: 310° @ 292 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*



COSA Area Compass #3

Start Location: **5**

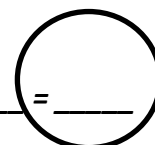
1st Bearing: 78° @ 210 Feet: Final Destination: _____

2nd Bearing: 294 @ 268 Feet: Final Destination: _____

3rd Bearing: 140° @ 257 Feet: Final Destination: _____

4th Bearing: 310° @ 292 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*



COSA Area Compass #4

Start Location: **5**

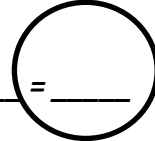
1st Bearing: 312° @ 156 Feet: Final Destination: _____

2nd Bearing: 168° @ 127 Feet: Final Destination: _____

3rd Bearing: 4° @ 176 Feet: Final Destination: _____

4th Bearing: 120° @ 314 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*



COSA Area Compass #4

Start Location: **5**

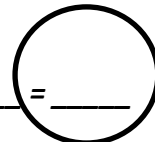
1st Bearing: 312° @ 156 Feet: Final Destination: _____

2nd Bearing: 168° @ 127 Feet: Final Destination: _____

3rd Bearing: 4° @ 176 Feet: Final Destination: _____

4th Bearing: 120° @ 314 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*



COSA Area Compass #4

Start Location: **5**

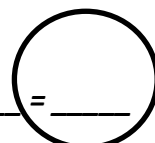
1st Bearing: 312° @ 156 Feet: Final Destination: _____

2nd Bearing: 168° @ 127 Feet: Final Destination: _____

3rd Bearing: 4° @ 176 Feet: Final Destination: _____

4th Bearing: 120° @ 314 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*



COSA Area Compass #5

Start Location: **5**

1st Bearing: 162° @ 158 Feet: Final Destination: _____

2nd Bearing: 106° @ 237 Feet: Final Destination: _____

3rd Bearing: 220° @ 159 Feet: Final Destination: _____

4th Bearing: 302° @ 280 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area Compass #5

Start Location: **5**

1st Bearing: 162° @ 158 Feet: Final Destination: _____

2nd Bearing: 106° @ 237 Feet: Final Destination: _____

3rd Bearing: 220° @ 159 Feet: Final Destination: _____

4th Bearing: 302° @ 280 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area Compass #5

Start Location: **5**

1st Bearing: 162° @ 158 Feet: Final Destination: _____

2nd Bearing: 106° @ 237 Feet: Final Destination: _____

3rd Bearing: 220° @ 159 Feet: Final Destination: _____

4th Bearing: 302° @ 280 Feet: Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #1

	Longitude	Latitude	Start Location: 5
1st Location:	84° 40.828	41° 41.980	Final Destination: _____
2 nd Location:	84° 40.842	41° 41.956	Final Destination: _____
3rd Location:	84° 40.878	41° 41.987	Final Destination: _____
4th Location:	84° 40.816	41° 41.966	Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #1

	Longitude	Latitude	Start Location: 5
1st Location:	84° 40.828	41° 41.980	Final Destination: _____
2 nd Location:	84° 40.842	41° 41.956	Final Destination: _____
3rd Location:	84° 40.878	41° 41.987	Final Destination: _____
4th Location:	84° 40.816	41° 41.966	Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #1

	Longitude	Latitude	Start Location: 5
1st Location:	84° 40.828	41° 41.980	Final Destination: _____
2 nd Location:	84° 40.842	41° 41.956	Final Destination: _____
3rd Location:	84° 40.878	41° 41.987	Final Destination: _____
4th Location:	84° 40.816	41° 41.966	Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #2

Start Location: **5**

1st Location: 84° 40.880 41° 41.960 Final Destination: _____

2nd Location: 84° 40.900 41° 41.972 Final Destination: _____

3rd Location: 84° 40.816 41° 41.966 Final Destination: _____

4th Location: 84° 40.823 41° 41.975 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #2

Start Location: **5**

1st Location: 84° 40.880 41° 41.960 Final Destination: _____

2nd Location: 84° 40.900 41° 41.972 Final Destination: _____

3rd Location: 84° 40.816 41° 41.966 Final Destination: _____

4th Location: 84° 40.823 41° 41.975 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #2

Start Location: **5**

1st Location: 84° 40.880 41° 41.960 Final Destination: _____

2nd Location: 84° 40.900 41° 41.972 Final Destination: _____

3rd Location: 84° 40.816 41° 41.966 Final Destination: _____

4th Location: 84° 40.823 41° 41.975 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #3

Start Location: **5**

1st Location: 84° 40.823 41° 41.975 Final Destination: _____

2nd Location: 84° 40.878 41° 41.987 Final Destination: _____

3rd Location: 84° 40.842 41° 41.956 Final Destination: _____

4th Location: 84° 40.900 41° 41.972 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #3

Start Location: **5**

1st Location: 84° 40.823 41° 41.975 Final Destination: _____

2nd Location: 84° 40.878 41° 41.987 Final Destination: _____

3rd Location: 84° 40.842 41° 41.956 Final Destination: _____

4th Location: 84° 40.900 41° 41.972 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #3

Start Location: **5**

1st Location: 84° 40.823 41° 41.975 Final Destination: _____

2nd Location: 84° 40.878 41° 41.987 Final Destination: _____

3rd Location: 84° 40.842 41° 41.956 Final Destination: _____

4th Location: 84° 40.900 41° 41.972 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #4

Start Location: **5**

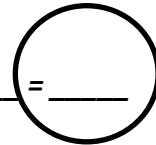
1st Location: 84° 40.894 41° 41.976 Final Destination: _____

2nd Location: 84° 40.880 41° 41.960 Final Destination: _____

3rd Location: 84° 40.878 41° 41.987 Final Destination: _____

4th Location: 84° 40.816 41° 41.966 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*



COSA Area GPS Course #4

Start Location: **5**

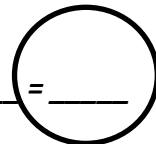
1st Location: 84° 40.894 41° 41.976 Final Destination: _____

2nd Location: 84° 40.880 41° 41.960 Final Destination: _____

3rd Location: 84° 40.878 41° 41.987 Final Destination: _____

4th Location: 84° 40.816 41° 41.966 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*



COSA Area GPS Course #4

Start Location: **5**

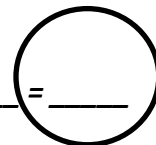
1st Location: 84° 40.894 41° 41.976 Final Destination: _____

2nd Location: 84° 40.880 41° 41.960 Final Destination: _____

3rd Location: 84° 40.878 41° 41.987 Final Destination: _____

4th Location: 84° 40.816 41° 41.966 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*



COSA Area GPS Course #5

Start Location: **5**

1st Location: 84° 40.878 41° 41.987 Final Destination: _____

2nd Location: 84° 40.828 41° 41.980 Final Destination: _____

3rd Location: 84° 40.842 41° 41.956 Final Destination: _____

4th Location: 84° 40.894 41° 41.976 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #5

Start Location: **5**

1st Location: 84° 40.878 41° 41.987 Final Destination: _____

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4th Location: 84° 40.894 41° 41.976 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*

COSA Area GPS Course #5

Start Location: **5**

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2nd Location: 84° 40.828 41° 41.980 Final Destination: _____

3rd Location: 84° 40.842 41° 41.956 Final Destination: _____

4th Location: 84° 40.894 41° 41.976 Final Destination: _____

*All destinations added together: **5** + _____ + _____ + _____ + _____ = _____*