## MAGNETIC DECLINATION WORKSHEET: ANSWER KEY

Grid Magnetic Angle + [(Current Year - Year of Declination Information) × (Annual Change)] = Current Declination

**Question 1:**

Grid Magnetic Angle: 10° 46'

Current Year 2011

Year of Declination Information: 1988

Annual Change: decreasing 5.2'

10° 46' + [(2011 - 1988) × (-5.2')] = Current Declination

10° 46' + [(23) × (-5.2')] = Current Declination

10° 46' + [-119.6'] = Current Declination

10° 46' - 119.6' = Current Declination

9° 106' - 119.6' = Current Declination

8° 166' - 119.6' = Current Declination

8° 46.4' = Current Declination

Magnetic declination is 8° 46.4' east.

**Question 2:**

Grid Magnetic Angle: 11° 2'

Current Year: 2014

Year of Declination Information: 1995

Annual Change: increasing 3.8'

11° 2' + [(2014 - 1995) × (+3.8')] = Current Declination

11° 2' + [(19) × (+3.8')] = Current Declination

11° 2' + [+72.2'] = Current Declination

11° 2' + 72.2' = Current Declination

11° 74.2' = Current Declination

12° 14.2' = Current Declination

Magnetic declination is 12° 14.2' east.

**Question 3:**

Grid Magnetic Angle: 18° 43'

Current Year: 2013



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Year of Declination Information: 1986

Annual Change: decreasing 6.5'

18° 43' + [(2013 - 1986) × (-6.5')] = Current Declination

18° 43' + [(27) × (-6.5')] = Current Declination

18° 43' + [-175.5'] = Current Declination

18° 43' - 175.5' = Current Declination

17° 103' - 175.5' = Current Declination

16° 163' - 175.5' = Current Declination

15° 223' - 175.5' = Current Declination

15° 47.5' = Current Declination

Magnetic declination is 15° 47.5' west.

**Question 4:**

Grid Magnetic Angle: 9° 14'

Current Year: 2018

Year of Declination Information: 1999

Annual Change: increasing 4.1'

9° 14' + [(2018 - 1999) × (+4.1')] = Current Declination

9° 14' + [(19) × (+4.1')] = Current Declination

9° 14' + [+77.6'] = Current Declination

9° 14' + 77.6' = Current Declination

9° 91.9' = Current Declination

10° 31.9' = Current Declination

Magnetic declination is 10° 31.9' west.

**Question 5:**

Grid Magnetic Angle: 19° 35'

Current Year: 2016

Year of Declination Information: 1981

Annual Change: decreasing 5.4'

19° 35' + [(2016 - 1981) × (-5.4')] = Current Declination

19° 35' + [(35) × (-5.4')] = Current Declination

19° 35' + [-189'] = Current Declination

19° 35' - 189' = Current Declination



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18° 95' - 189' = Current Declination

17° 155' - 189' = Current Declination

16° 215' - 189' = Current Declination

16° 26' = Current Declination

Magnetic declination is 16° 26' west.

**Question 6:**

Grid Magnetic Angle: 18° 22'

Current Year: 2010

Year of Declination Information: 1976

Annual Change: increasing 4.7'

18° 22' + [(2010 - 1976) × (+4.7')] = Current Declination

18° 22' + [(34) × (+4.7')] = Current Declination

18° 22' + [+159.8] = Current Declination

18° 22' + 159.8' = Current Declination

18° 181.8' = Current Declination

19° 121.8' = Current Declination

20° 61.8' = Current Declination

21° 1.8' = Current Declination

Magnetic declination is 21° 1.8' west.

**Question 7:**

Grid Magnetic Angle: 12° 34'

Current Year: 2020

Year of Declination Information: 1991

Annual Change: increasing 1.2'

12° 34' + [(2020 - 1991) × (+1.2')] = Current Declination

12° 34' + [(29) × (+1.2')] = Current Declination

12° 34' + [+34.8'] = Current Declination

12° 34' + 34.8' = Current Declination

12° 68.8' = Current Declination

13° 8.8' = Current Declination

Magnetic declination is 13° 8.8' east.

**Question 8:**



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| | |
|---|---|
| Grid Magnetic Angle: | 13° 21' |
| Current Year: | 2017 |
| Year of Declination Information: | 1994 |
| Annual Change: | decreasing 2.9' |

13° 21' + [(2017 - 1994) × (-2.9')] = Current Declination

13° 21' + [(23) × (-2.9')] = Current Declination

13° 21' + [-66.7'] = Current Declination

13° 21' - 66.7' = Current Declination

12° 81' - 66.7' = Current Declination

12° 14.3' = Current Declination

Magnetic declination is 12° 14.3' east.

**Question 9:**

| | |
|---|---|
| Grid Magnetic Angle: | 3° 16' |
| Current Year: | 2012 |
| Year of Declination Information: | 1980 |
| Annual Change: | decreasing 6.2' |

3° 16' + [(2012 - 1980) × (-6.2')] = Current Declination

3° 16' + [(32) × (-6.2')] = Current Declination

3° 16' + [-198.4'] = Current Declination

3° 16' - 198.4' = Current Declination

2° 76' - 198.4' = Current Declination

1° 136' - 198.4' = Current Declination

196' - 198.4' = Current Declination

-2.4' = Current Declination

Since the current declination calculated has a negative value, the east declination, as shown on the declination diagram, becomes a west declination.

Magnetic declination is 2.4' west.

**Question 10:**

| | |
|---|---|
| Grid Magnetic Angle: | 4° 27' |
| Current Year: | 2019 |
| Year of Declination Information: | 1977 |



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Annual Change: increasing 2.2'

4° 27' + [(2019 - 1977) × (+2.2')] = Current Declination

4° 27' + [(42) × (+2.2')] = Current Declination

4° 27' + [+92.4'] = Current Declination

4° 27' + 92.4' = Current Declination

4° 119.4' = Current Declination

5° 59.4' = Current Declination

Magnetic declination is 5° 59.4' east.

**Question 11:**

Grid Magnetic Angle: 7° 7'

Current Year: 2021

Year of Declination Information: 1992

Annual Change: increasing 5.5'

7° 7' + [(2021 - 1992) × (+5.5')] = Current Declination

7° 7' + [(29) × (+5.5')] = Current Declination

7° 7' + [+159.5'] = Current Declination

7° 7' + 159.5' = Current Declination

7° 166.5' = Current Declination

8° 106.5' = Current Declination

9° 46.5' = Current Declination

Magnetic declination is 9° 46.5' west.

**Question 12:**

Grid Magnetic Angle: 9° 36'

Current Year: 2015

Year of Declination Information: 1983

Annual Change: decreasing 3.3'

9° 36' + [(2015 - 1983) × (-3.3')] = Current Declination

9° 36' + [(32) × (-3.3')] = Current Declination

9° 36' + [-105.6'] = Current Declination

9° 36' - 105.6' = Current Declination

8° 96' - 105.6' = Current Declination

7° 156' - 105.6' = Current Declination



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7° 50.4' = Current Declination

Magnetic declination is 7° 50.4' west.



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