

FALL 2016 McNABB GDCTM CONTEST ANSWER SHEET

Name: Key School: _____ Date: _____

Contest Taking (Circle One):

Pre-algebra Algebra I Geometry Algebra II Pre-calculus Calculus

DIRECTIONS:

1. You are NOT permitted to use a calculator or any other electronic device. You have 45 minutes for Pre-Algebra and Algebra I. For all others, you have 60 minutes.
2. All answers should be in standard simplified form unless otherwise stated. All variables are assumed to stand for real numbers unless otherwise stated. Solve means find all real solutions unless otherwise stated.

1.

18

6.

10

11.

1210

2.

-58

7.

1373

12.

 $30/43$

3.

9

8.

359.3052

13.

 $5/9$

4.

5

9.

19

14.

 $2 - \sqrt{3}$

5.

2016

10.

24

15.

2

SCORE: _____

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1.

9

6.

480

11.

720

2.

2016

7.

2575

12.

$(-1, 2)$

3.

$2x^2 - 31x - 45$

8.

6

13.

6

4.

11

9.

9

14.

0

5.

$-87/17$

10.

6

15.

$41/4$

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1.

70

6.

$2\pi - 4$

11.

$100\sqrt{3} - 50\pi$

2.

10

7.

120

12.

$10/3$

3.

2

8.

1

13.

70π

4.

1

9.

$65/8$

14.

14

5.

18

10.

5

15.

25

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1.

18

6.

-30

11.

1/2

2.

67/9

7.

$\frac{2}{3}, \frac{4}{3}, 2$

12.

1

3.

2

8.

117/50

13.

$3 - 2\sqrt{2}$

4.

23

9.

$\frac{29}{4}$ or 8^*

14.

$x^3 - 3x^2 - 14x - 49$

5.

$1 - 2i$

10.

480

15.

$(x+1)^2 \cdot (x^2 - x + 1) \cdot (x^4 - x^3 + x^2 - x + 1)$

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* accept either answer by itself

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1. 1

6. $45/2^{177}$

11. $1, 5, 13$
(in any order)

2. 70

7. $2 + 2\sqrt{2}$

12. $(\frac{19}{5}, \frac{8}{5})$ or $(\frac{19}{5}, \frac{8}{5})^*$

3. 24

8. $(19, 6)$
(others possible)

13. $0, \pm\sqrt{3}i, \pm\frac{1}{\sqrt{3}}i$

4. $1 - 2i$

9. 55

14. $4/9$

5. $2 + \sqrt{2}$

10. $5/3$

15. 2

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* other answers possible
check if it looks close

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1.

$$1 - 2i$$

6.

$$48$$

11.

$$\frac{25}{2312}$$

2.

$$1889$$

7.

$$\frac{3}{8} - \frac{3}{8} \ln\left(\frac{3}{8}\right)$$

12.

$$20$$

3.

$$1$$

8.

$$4$$

13.

$$1/2$$

4.

$$3/143$$

9.

$$n!$$

14.

$$-2/27$$

5.

$$5/3$$

10.

$$1$$

15.

$$\frac{-\ln 2}{2}$$

SCORE: _____