

## Pre-Calc Summer Packet Answer Section

### MULTIPLE CHOICE

1. ANS: A                   PTS: 1                   DIF: L2                   REF: 1-1 Properties of Real Numbers  
OBJ: 1-1.1 Graphing and Ordering Real Numbers  
NAT: NAEP N1j| NAEP N5e| CAT5.LV21/22.52| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA|  
S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.13| TV.LV21/22.18| TV.LVALG.53  
STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 A.3 | NJ 4.1.12 B.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b | NJ  
4.3.12 A.1a                   TOP: 1-1 Example 1                   KEY: irrational numbers | real numbers
2. ANS: B                   PTS: 1                   DIF: L2                   REF: 1-1 Properties of Real Numbers  
OBJ: 1-1.1 Graphing and Ordering Real Numbers  
NAT: NAEP N1j| NAEP N5e| CAT5.LV21/22.52| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA|  
S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.13| TV.LV21/22.18| TV.LVALG.53  
STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 A.3 | NJ 4.1.12 B.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b | NJ  
4.3.12 A.1a                   TOP: 1-1 Example 1                   KEY: rational numbers | real numbers
3. ANS: B                   PTS: 1                   DIF: L3                   REF: 1-2 Algebraic Expressions  
OBJ: 1-2.1 Evaluating Algebraic Expressions  
NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.54| IT.LV17/18.AM| S9.TSK3.NS|  
S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.11| TV.LV21/22.12|  
TV.LV21/22.52| TV.LVALG.53  
STA: NJ 4.1.12 B.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c | NJ 4.3.12 D.3  
TOP: 1-2 Example 1                   KEY: algebraic expression | order of operations
4. ANS: C                   PTS: 1                   DIF: L3                   REF: 1-2 Algebraic Expressions  
OBJ: 1-2.1 Evaluating Algebraic Expressions  
NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.54| IT.LV17/18.AM| S9.TSK3.NS|  
S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.11| TV.LV21/22.12|  
TV.LV21/22.52| TV.LVALG.53  
STA: NJ 4.1.12 B.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c | NJ 4.3.12 D.3  
TOP: 1-2 Example 2                   KEY: algebraic expression
5. ANS: B                   PTS: 1                   DIF: L2                   REF: 1-2 Algebraic Expressions  
OBJ: 1-2.1 Evaluating Algebraic Expressions  
NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.54| IT.LV17/18.AM| S9.TSK3.NS|  
S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.11| TV.LV21/22.12|  
TV.LV21/22.52| TV.LVALG.53  
STA: NJ 4.1.12 B.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c | NJ 4.3.12 D.3  
TOP: 1-2 Example 3                   KEY: algebraic expression | word problem | problem solving
6. ANS: A                   PTS: 1                   DIF: L3                   REF: 1-3 Solving Equations  
OBJ: 1-3.1 Solving Equations  
NAT: NAEP A3a| NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.54| CAT5.LV21/22.56|  
IT.LV17/18.AM| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA|  
TV.LV21/22.12| TV.LV21/22.16| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.54  
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.2a |  
NJ 4.3.12 D.3                   TOP: 1-3 Example 4  
KEY: solve an equation | restrictions on a variable

7. ANS: B                   PTS: 1                   DIF: L2                   REF: 1-3 Solving Equations  
 OBJ: 1-3.2 Writing Equations to Solve Problems  
 NAT: NAEP A3a| NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.54| CAT5.LV21/22.56|  
 IT.LV17/18.AM| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA|  
 TV.LV21/22.12| TV.LV21/22.16| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.54  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.2a |  
 NJ 4.3.12 D.3           TOP: 1-3 Example 6  
 KEY: word problem | problem solving | triangle | perimeter | ratio
8. ANS: D                   PTS: 1                   DIF: L4                   REF: 1-3 Solving Equations  
 OBJ: 1-3.2 Writing Equations to Solve Problems  
 NAT: NAEP A3a| NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.54| CAT5.LV21/22.56|  
 IT.LV17/18.AM| IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA|  
 TV.LV21/22.12| TV.LV21/22.16| TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.54  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.2a |  
 NJ 4.3.12 D.3           KEY: word problem | problem solving | simple interest
9. ANS: B                   PTS: 1                   DIF: L3                   REF: 2-1 Relations and Functions  
 OBJ: 2-1.2 Identifying Functions  
 NAT: NAEP A2b| NAEP A2e| CAT5.LV21/22.54| IT.LV17/18.AM| S9.TSK3.PRA| S10.TSK3.PRA|  
 TV.LV21/22.10| TV.LV21/22.14| TV.LV21/22.16| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2b | NJ 4.3.12 B.2d  
 TOP: 2-1 Example 6                   KEY: function notation
10. ANS: C                   PTS: 1                   DIF: L2                   REF: 2-2 Linear Equations  
 OBJ: 2-2.2 Writing Equations of Lines  
 NAT: NAEP A1h| NAEP A2a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.54|  
 IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA|  
 TV.LV21/22.14| TV.LV21/22.16| TV.LV21/22.52| TV.LVALG.54| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.2.12 A.3a | NJ 4.2.12 C.1b | NJ 4.2.12 C.1d | NJ 4.2.12 C.1e | NJ 4.3.12 B.1 |  
 NJ 4.3.12 B.2a | NJ 4.3.12 B.2c | NJ 4.3.12 B.2h | NJ 4.3.12 C.1a  
 TOP: 2-2 Example 6  
 KEY: point-slope form | standard form of linear equation | slope
11. ANS: C                   PTS: 1                   DIF: L3                   REF: 2-2 Linear Equations  
 OBJ: 2-2.2 Writing Equations of Lines  
 NAT: NAEP A1h| NAEP A2a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.54|  
 IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA|  
 TV.LV21/22.14| TV.LV21/22.16| TV.LV21/22.52| TV.LVALG.54| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.2.12 A.3a | NJ 4.2.12 C.1b | NJ 4.2.12 C.1d | NJ 4.2.12 C.1e | NJ 4.3.12 B.1 |  
 NJ 4.3.12 B.2a | NJ 4.3.12 B.2c | NJ 4.3.12 B.2h | NJ 4.3.12 C.1a  
 TOP: 2-2 Example 7                   KEY: vertical line | horizontal line | undefined slope | slope
12. ANS: C                   PTS: 1                   DIF: L2                   REF: 2-2 Linear Equations  
 OBJ: 2-2.2 Writing Equations of Lines  
 NAT: NAEP A1h| NAEP A2a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.54|  
 IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA|  
 TV.LV21/22.14| TV.LV21/22.16| TV.LV21/22.52| TV.LVALG.54| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.2.12 A.3a | NJ 4.2.12 C.1b | NJ 4.2.12 C.1d | NJ 4.2.12 C.1e | NJ 4.3.12 B.1 |  
 NJ 4.3.12 B.2a | NJ 4.3.12 B.2c | NJ 4.3.12 B.2h | NJ 4.3.12 C.1a  
 TOP: 2-2 Example 7                   KEY: slope | perpendicular | equation of a line

13. ANS: A                   PTS: 1                   DIF: L2                   REF: 2-2 Linear Equations  
 OBJ: 2-2.2 Writing Equations of Lines  
 NAT: NAEP A1h| NAEP A2a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.54|  
 IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA|  
 TV.LV21/22.14| TV.LV21/22.16| TV.LV21/22.52| TV.LVALG.54| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.2.12 A.3a | NJ 4.2.12 C.1b | NJ 4.2.12 C.1d | NJ 4.2.12 C.1e | NJ 4.3.12 B.1 |  
 NJ 4.3.12 B.2a | NJ 4.3.12 B.2c | NJ 4.3.12 B.2h | NJ 4.3.12 C.1a  
 TOP: 2-2 Example 7                   KEY: slope | equation of a line
14. ANS: D                   PTS: 1                   DIF: L2  
 REF: 2-5 Absolute Value Functions and Graphs  
 OBJ: 2-5.1 Graphing Absolute Value Functions  
 NAT: NAEP A2d| CAT5.LV21/22.50| CAT5.LV21/22.54| IT.LV17/18.AM| S9.TSK3.NS|  
 S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.16| TV.LV21/22.52|  
 TV.LVALG.56  
 STA: NJ 4.1.12 B.1 | NJ 4.3.12 B.2e | NJ 4.3.12 C.1a | NJ 4.3.12 C.1c | NJ 4.3.12 D.2a  
 TOP: 2-5 Example 1                   KEY: absolute value
15. ANS: D                   PTS: 1                   DIF: L2  
 REF: 5-4 Factoring Quadratic Expressions  
 OBJ: 5-4.1 Finding Common and Binomial Factors  
 NAT: NAEP A3b| NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.52| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.PRA| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.52| TV.LVALG.53|  
 TV.LVALG.57           STA: NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.3  
 TOP: 5-4 Example 2                   KEY: factor a quadratic expression | quadratic expression
16. ANS: D                   PTS: 1                   DIF: L2  
 REF: 5-4 Factoring Quadratic Expressions  
 OBJ: 5-4.1 Finding Common and Binomial Factors  
 NAT: NAEP A3b| NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.52| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.PRA| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.52| TV.LVALG.53|  
 TV.LVALG.57           STA: NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.3  
 TOP: 5-4 Example 5                   KEY: factor a quadratic expression | quadratic expression
17. ANS: B                   PTS: 1                   DIF: L2  
 REF: 5-4 Factoring Quadratic Expressions  
 OBJ: 5-4.2 Factoring Special Expressions  
 NAT: NAEP A3b| NAEP A3c| CAT5.LV21/22.50| CAT5.LV21/22.52| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.PRA| S10.TSK3.PRA| TV.LV21/22.11| TV.LV21/22.52| TV.LVALG.53|  
 TV.LVALG.57           STA: NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.3  
 TOP: 5-4 Example 8  
 KEY: difference of two squares | factoring a difference of two squares
18. ANS: B                   PTS: 1                   DIF: L2                   REF: 6-4 Solving Polynomial Equations  
 OBJ: 6-4.2 Solving Equations by Factoring  
 NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.10|  
 TV.LV21/22.13| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.56  
 STA: NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ 4.3.12 B.2f | NJ 4.3.12 D.2c |  
 NJ 4.3.12 D.3           TOP: 6-4 Example 3  
 KEY: factoring a polynomial | polynomial

19. ANS: C                   PTS: 1                   DIF: L2                   REF: 6-4 Solving Polynomial Equations  
 OBJ: 6-4.2 Solving Equations by Factoring  
 NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.10|  
 TV.LV21/22.13| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.56  
 STA: NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ 4.3.12 B.2f | NJ 4.3.12 D.2c |  
 NJ 4.3.12 D.3           TOP: 6-4 Example 5  
 KEY: factoring a polynomial | polynomial
20. ANS: C                   PTS: 1                   DIF: L2                   REF: 5-5 Quadratic Equations  
 OBJ: 5-5.1 Solving by Factoring and Finding Square Roots  
 NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.56| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.12|  
 TV.LV21/22.16| TV.LV21/22.17| TV.LVALG.56| TV.LVALG.57  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ 4.3.12 B.2f |  
 NJ 4.3.12 C.1a | NJ 4.3.12 D.2b | NJ 4.3.12 D.2c | NJ 4.3.12 D.3  
 TOP: 5-5 Example 1                   KEY: factor a quadratic expression
21. ANS: B                   PTS: 1                   DIF: L2                   REF: 5-6 Complex Numbers  
 OBJ: 5-6.1 Identifying Complex Numbers  
 NAT: NAEP A2c| CAT5.LV21/22.49| CAT5.LV21/22.50| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.11|  
 TV.LV21/22.12| TV.LVALG.53  
 STA: NJ 4.1.12 A.3 | NJ 4.2.12 A.3e | NJ 4.2.12 B.4a | NJ 4.2.12 B.4b | NJ 4.2.12 B.4c | NJ 4.2.12 C.1a  
 | NJ 4.3.12 D.1b | NJ 4.3.12 D.3           TOP: 5-6 Example 1  
 KEY: i | imaginary number
22. ANS: B                   PTS: 1                   DIF: L2                   REF: 5-6 Complex Numbers  
 OBJ: 5-6.2 Operations With Complex Numbers  
 NAT: NAEP A2c| CAT5.LV21/22.49| CAT5.LV21/22.50| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.11|  
 TV.LV21/22.12| TV.LVALG.53  
 STA: NJ 4.1.12 A.3 | NJ 4.2.12 A.3e | NJ 4.2.12 B.4a | NJ 4.2.12 B.4b | NJ 4.2.12 B.4c | NJ 4.2.12 C.1a  
 | NJ 4.3.12 D.1b | NJ 4.3.12 D.3           TOP: 5-6 Example 6  
 KEY: simplifying a complex number | complex number | multiplying complex numbers
23. ANS: A                   PTS: 1                   DIF: L2                   REF: 5-6 Complex Numbers  
 OBJ: 5-6.2 Operations With Complex Numbers  
 NAT: NAEP A2c| CAT5.LV21/22.49| CAT5.LV21/22.50| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.11|  
 TV.LV21/22.12| TV.LVALG.53  
 STA: NJ 4.1.12 A.3 | NJ 4.2.12 A.3e | NJ 4.2.12 B.4a | NJ 4.2.12 B.4b | NJ 4.2.12 B.4c | NJ 4.2.12 C.1a  
 | NJ 4.3.12 D.1b | NJ 4.3.12 D.3           TOP: 5-6 Example 6  
 KEY: simplifying a complex number | complex number | multiplying complex numbers
24. ANS: B                   PTS: 1                   DIF: L2                   REF: 5-8 The Quadratic Formula  
 OBJ: 5-8.1 Using the Quadratic Formula  
 NAT: NAEP A4a| NAEP A4c| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.53|  
 IT.LV17/18.AM| IT.LV17/18.CP| IT.LV17/18.DI| S9.TSK3.DSP| S9.TSK3.NS| S9.TSK3.PRA|  
 S10.TSK3.DSP| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53|  
 TV.LVALG.57  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2b | NJ 4.3.12 B.2c | NJ 4.3.12 B.2e |  
 NJ 4.3.12 D.2b | NJ 4.3.12 D.3           TOP: 5-8 Example 1  
 KEY: Quadratic Formula

25. ANS: A                   PTS: 1                   DIF: L3                   REF: 6-4 Solving Polynomial Equations  
 OBJ: 6-4.2 Solving Equations by Factoring  
 NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.10|  
 TV.LV21/22.13| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.56  
 STA: NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ 4.3.12 B.2f | NJ 4.3.12 D.2c |  
 NJ 4.3.12 D.3           TOP: 6-4 Example 3  
 KEY: factoring a polynomial | polynomial function | problem solving
26. ANS: C                   PTS: 1                   DIF: L2                   REF: 6-4 Solving Polynomial Equations  
 OBJ: 6-4.2 Solving Equations by Factoring  
 NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.10|  
 TV.LV21/22.13| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.56  
 STA: NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ 4.3.12 B.2f | NJ 4.3.12 D.2c |  
 NJ 4.3.12 D.3           TOP: 6-4 Example 6  
 KEY: factoring a polynomial | polynomial
27. ANS: A                   PTS: 1                   DIF: L3                   REF: 7-1 Roots and Radical Expressions  
 OBJ: 7-1.1 Roots and Radical Expressions  
 NAT: NAEP N1d| NAEP N5f| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52|  
 IT.LV17/18.AM| IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA|  
 TV.LV21/22.11| TV.LV21/22.10| TV.LV21/22.11| TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 A.3 | NJ 4.1.12 B.4 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ  
 4.2.12 D.2a | NJ 4.2.12 D.2b | NJ 4.2.12 e.2c | NJ 4.3.12 D.3   TOP: 7-1 Example 3  
 KEY: simplifying a radical expression
28. ANS: A                   PTS: 1                   DIF: L4  
 REF: 7-2 Multiplying and Dividing Radical Expressions  
 OBJ: 7-2.1 Multiplying Radical Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11|  
 TV.LV21/22.12| TV.LV21/22.16| TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.1.12 B.4 | NJ 4.3.12 D.3  
 TOP: 7-2 Example 3  
 KEY: multiplying radical expressions | simplifying a radical expression
29. ANS: A                   PTS: 1                   DIF: L2  
 REF: 7-2 Multiplying and Dividing Radical Expressions  
 OBJ: 7-2.1 Multiplying Radical Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11|  
 TV.LV21/22.12| TV.LV21/22.16| TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.1.12 B.4 | NJ 4.3.12 D.3  
 TOP: 7-2 Example 3  
 KEY: multiplying radical expressions | simplifying a radical expression

30. ANS: A                   PTS: 1                   DIF: L2  
 REF: 7-2 Multiplying and Dividing Radical Expressions  
 OBJ: 7-2.2 Dividing Radical Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11|  
 TV.LV21/22.12| TV.LV21/22.16| TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.1.12 B.4 | NJ 4.3.12 D.3  
 TOP: 7-2 Example 4  
 KEY: simplifying a radical expression | divide radical expressions | rationalize the denominator
31. ANS: A                   PTS: 1                   DIF: L3  
 REF: 7-2 Multiplying and Dividing Radical Expressions  
 OBJ: 7-2.2 Dividing Radical Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11|  
 TV.LV21/22.12| TV.LV21/22.16| TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.1.12 B.4 | NJ 4.3.12 D.3  
 TOP: 7-2 Example 5  
 KEY: divide radical expressions | simplifying a radical expression
32. ANS: C                   PTS: 1                   DIF: L2                   REF: 7-3 Binomial Radical Expressions  
 OBJ: 7-3.2 Multiplying and Dividing Binomial Radical Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.52|  
 TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 B.1 | NJ 4.1.12 B.4 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b |  
 NJ 4.3.12 D.3           TOP: 7-3 Example 6  
 KEY: binomial radical expressions | conjugates | multiplying binomial radical expressions | simplifying a  
 radical expression
33. ANS: A                   PTS: 1                   DIF: L2                   REF: 7-3 Binomial Radical Expressions  
 OBJ: 7-3.1 Adding and Subtracting Radical Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.52|  
 TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 B.1 | NJ 4.1.12 B.4 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b |  
 NJ 4.3.12 D.3           TOP: 7-3 Example 3  
 KEY: like radicals | simplifying a radical expression
34. ANS: C                   PTS: 1                   DIF: L2                   REF: 7-4 Rational Exponents  
 OBJ: 7-4.1 Simplifying Expressions with Rational Exponents  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.10| TV.LV21/22.12|  
 TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 B.1 | NJ 4.1.12 B.2 | NJ 4.1.12 B.4 | NJ 4.2.12 A.1 | NJ  
 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 C.1a | NJ 4.3.12 D.2c | NJ 4.3.12 D.3  
 TOP: 7-4 Example 1                   KEY: rational exponent

35. ANS: B                   PTS: 1                   DIF: L4                   REF: 7-3 Binomial Radical Expressions  
 OBJ: 7-3.2 Multiplying and Dividing Binomial Radical Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.52|  
 TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 B.1 | NJ 4.1.12 B.4 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b |  
 NJ 4.3.12 D.3           TOP: 7-3 Example 4  
 KEY: binomial radical expressions | multiplying binomial radical expressions | simplifying a radical  
 expression
36. ANS: D                   PTS: 1                   DIF: L2                   REF: 7-5 Solving Radical Equations  
 OBJ: 7-5.1 Solving Radical Equations  
 NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.52|  
 TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.1.12 B.2 | NJ 4.1.12 B.4 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ  
 4.3.12 D.3           TOP: 7-5 Example 1                   KEY: radical equation |
37. ANS: D                   PTS: 1                   DIF: L2                   REF: 7-5 Solving Radical Equations  
 OBJ: 7-5.1 Solving Radical Equations  
 NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.52|  
 TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.1.12 B.2 | NJ 4.1.12 B.4 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ  
 4.3.12 D.3           TOP: 7-5 Example 4  
 KEY: radical equation | extraneous solutions
38. ANS: A                   PTS: 1                   DIF: L2                   REF: 7-5 Solving Radical Equations  
 OBJ: 7-5.1 Solving Radical Equations  
 NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.52|  
 TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.1.12 B.2 | NJ 4.1.12 B.4 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ  
 4.3.12 D.3           TOP: 7-5 Example 5  
 KEY: extraneous solutions | radical equation | rational exponent
39. ANS: C                   PTS: 1                   DIF: L2                   REF: 7-6 Function Operations  
 OBJ: 7-6.1 Operations with Functions  
 NAT: NAEP A1g| NAEP A3b| CAT5.LV21/22.49| CAT5.LV21/22.50| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.51|  
 TV.LV21/22.52| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.3.12 B.1 | NJ 4.3.12 C.1a  
 TOP: 7-6 Example 2  
 KEY: operations with functions | multiplication and division of functions | domain
40. ANS: B                   PTS: 1                   DIF: L2                   REF: 7-6 Function Operations  
 OBJ: 7-6.1 Operations with Functions  
 NAT: NAEP A1g| NAEP A3b| CAT5.LV21/22.49| CAT5.LV21/22.50| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.51|  
 TV.LV21/22.52| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.3.12 B.1 | NJ 4.3.12 C.1a  
 TOP: 7-6 Example 2  
 KEY: multiplication and division of functions | operations with functions | domain

41. ANS: A                   PTS: 1                   DIF: L3                   REF: 7-6 Function Operations  
 OBJ: 7-6.2 Composition of Functions  
 NAT: NAEP A1g| NAEP A3b| CAT5.LV21/22.49| CAT5.LV21/22.50| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.51|  
 TV.LV21/22.52| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.3.12 B.1 | NJ 4.3.12 C.1a  
 TOP: 7-6 Example 3                   KEY: composition of functions | operations with functions
42. ANS: A                   PTS: 1                   DIF: L2  
 REF: 7-7 Inverse Relations and Functions                   OBJ: 7-7.1 The Inverse of a Function  
 NAT: NAEP A2c| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM|  
 S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2b | NJ  
 4.3.12 C.1a | NJ 4.3.12 D.3                   TOP: 7-7 Example 2  
 KEY: inverse relations and functions |
43. ANS: C                   PTS: 1                   DIF: L2                   REF: 7-8 Graphing Radical Functions  
 OBJ: 7-8.1 Radical Functions  
 NAT: NAEP A2a| CAT5.LV21/22.53| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.DI|  
 S9.TSK3.DSP| S9.TSK3.GM| S10.TSK3.DSP| S10.TSK3.GM| TV.LV21/22.14| TV.LV21/22.15|  
 TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.2 | NJ 4.2.12 B.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2b | NJ 4.3.12 B.2f | NJ  
 4.3.12 C.1a | NJ 4.3.12 D.2c | NJ 4.3.12 D.3                   TOP: 7-8 Example 2  
 KEY: domain | graphing | range | radical function | translation
44. ANS: C                   PTS: 1                   DIF: L2                   REF: 7-8 Graphing Radical Functions  
 OBJ: 7-8.1 Radical Functions  
 NAT: NAEP A2a| CAT5.LV21/22.53| CAT5.LV21/22.56| IT.LV17/18.AM| IT.LV17/18.DI|  
 S9.TSK3.DSP| S9.TSK3.GM| S10.TSK3.DSP| S10.TSK3.GM| TV.LV21/22.14| TV.LV21/22.15|  
 TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.2 | NJ 4.2.12 B.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2b | NJ 4.3.12 B.2f | NJ  
 4.3.12 C.1a | NJ 4.3.12 D.2c | NJ 4.3.12 D.3                   TOP: 7-8 Example 4  
 KEY: cube root | cube function | graphing
45. ANS: A                   PTS: 1                   DIF: L3  
 REF: 8-1 Exploring Exponential Models                   OBJ: 8-1.1 Exponential Growth  
 NAT: NAEP A2h| CAT5.LV21/22.50| CAT5.LV21/22.53| IT.LV17/18.AM| IT.LV17/18.DI|  
 IT.LV17/18.PS| S9.TSK3.DSP| S9.TSK3.PRA| S10.TSK3.DSP| S10.TSK3.PRA| TV.LV21/22.15|  
 TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.1.12 B.4 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ  
 4.3.12 B.4c | NJ 4.3.12 C.1a | NJ 4.3.12 C.1e | NJ 4.3.12 C.1f | NJ 4.3.12 C.2 | NJ 4.3.12 D.3 | NJ 4.4.12  
 A.4   TOP:                   8-1 Example 2                   KEY: exponential function | growth factor
46. ANS: A                   PTS: 1                   DIF: L3  
 REF: 8-3 Logarithmic Functions as Inverses  
 OBJ: 8-3.1 Writing and Evaluating Logarithmic Expressions  
 NAT: NAEP A2a| NAEP A3a| NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13|  
 TV.LV21/22.52| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 B.1 | NJ 4.2.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ  
 4.3.12 B.2c | NJ 4.3.12 C.1f | NJ 4.3.12 D.3                   TOP: 8-3 Example 2  
 KEY: logarithm | logarithmic form



47. ANS: C                   PTS: 1                   DIF: L4  
 REF: 8-3 Logarithmic Functions as Inverses  
 OBJ: 8-3.1 Writing and Evaluating Logarithmic Expressions  
 NAT: NAEP A2a| NAEP A3a| NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13|  
 TV.LV21/22.52| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 B.1 | NJ 4.2.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ  
 4.3.12 B.2c | NJ 4.3.12 C.1f | NJ 4.3.12 D.3                   TOP: 8-3 Example 2  
 KEY: logarithmic form | logarithm
48. ANS: C                   PTS: 1                   DIF: L4  
 REF: 8-3 Logarithmic Functions as Inverses  
 OBJ: 8-3.1 Writing and Evaluating Logarithmic Expressions  
 NAT: NAEP A2a| NAEP A3a| NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13|  
 TV.LV21/22.52| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 B.1 | NJ 4.2.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ  
 4.3.12 B.2c | NJ 4.3.12 C.1f | NJ 4.3.12 D.3                   TOP: 8-3 Example 3  
 KEY: evaluating logarithms
49. ANS: B                   PTS: 1                   DIF: L4  
 REF: 8-3 Logarithmic Functions as Inverses  
 OBJ: 8-3.1 Writing and Evaluating Logarithmic Expressions  
 NAT: NAEP A2a| NAEP A3a| NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13|  
 TV.LV21/22.52| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 A.2 | NJ 4.1.12 B.1 | NJ 4.2.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ  
 4.3.12 B.2c | NJ 4.3.12 C.1f | NJ 4.3.12 D.3                   TOP: 8-3 Example 4  
 KEY: evaluating logarithms
50. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-4 Properties of Logarithms  
 OBJ: 8-4.1 Using the Properties of Logarithms  
 NAT: NAEP A2e| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13| TV.LV21/22.52|  
 TV.LVALG.53           STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.3.12 D.2c | NJ 4.3.12 D.3  
 TOP: 8-4 Example 2                   KEY: properties of logarithms | simplifying a logarithm
51. ANS: C                   PTS: 1                   DIF: L4  
 REF: 8-5 Exponential and Logarithmic Equations  
 OBJ: 8-5.2 Solving Logarithmic Equations  
 NAT: NAEP A2b| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.52|  
 TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ 4.3.12 B.2f |  
 NJ 4.3.12 B.2g | NJ 4.3.12 C.1a | NJ 4.3.12 C.1e | NJ 4.3.12 C.1f | NJ 4.3.12 D.2c | NJ 4.3.12 D.3  
 TOP: 8-5 Example 5                   KEY: exponential equation

52. ANS: C                   PTS: 1                   DIF: L4  
 REF: 8-5 Exponential and Logarithmic Equations  
 OBJ: 8-5.2 Solving Logarithmic Equations  
 NAT: NAEP A2b| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.52|  
 TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ 4.3.12 B.2f |  
 NJ 4.3.12 B.2g | NJ 4.3.12 C.1a | NJ 4.3.12 C.1e | NJ 4.3.12 C.1f | NJ 4.3.12 D.2c | NJ 4.3.12 D.3  
 TOP: 8-5 Example 5                   KEY: Change of Base Formula | exponential equation
53. ANS: A                   PTS: 1                   DIF: L3  
 REF: 8-5 Exponential and Logarithmic Equations  
 OBJ: 8-5.2 Solving Logarithmic Equations  
 NAT: NAEP A2b| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.52|  
 TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ 4.3.12 B.2f |  
 NJ 4.3.12 B.2g | NJ 4.3.12 C.1a | NJ 4.3.12 C.1e | NJ 4.3.12 C.1f | NJ 4.3.12 D.2c | NJ 4.3.12 D.3  
 TOP: 8-5 Example 6                   KEY: logarithmic equation | properties of logarithms
54. ANS: B                   PTS: 1                   DIF: L3  
 REF: 8-5 Exponential and Logarithmic Equations  
 OBJ: 8-5.2 Solving Logarithmic Equations  
 NAT: NAEP A2b| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.52|  
 TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ 4.3.12 B.2f |  
 NJ 4.3.12 B.2g | NJ 4.3.12 C.1a | NJ 4.3.12 C.1e | NJ 4.3.12 C.1f | NJ 4.3.12 D.2c | NJ 4.3.12 D.3  
 TOP: 8-5 Example 7                   KEY: logarithmic equation | properties of logarithms
55. ANS: A                   PTS: 1                   DIF: L4  
 REF: 8-5 Exponential and Logarithmic Equations  
 OBJ: 8-5.2 Solving Logarithmic Equations  
 NAT: NAEP A2b| CAT5.LV21/22.50| CAT5.LV21/22.51| IT.LV17/18.AM| IT.LV17/18.CP|  
 S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.52|  
 TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 B.2c | NJ 4.3.12 B.2f |  
 NJ 4.3.12 B.2g | NJ 4.3.12 C.1a | NJ 4.3.12 C.1e | NJ 4.3.12 C.1f | NJ 4.3.12 D.2c | NJ 4.3.12 D.3  
 TOP: 8-5 Example 7                   KEY: logarithmic equation | properties of logarithms
56. ANS: A                   PTS: 1                   DIF: L4                   REF: 8-6 Natural Logarithms  
 OBJ: 8-6.1 Natural Logarithms  
 NAT: NAEP A3a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11|  
 TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 C.1f | NJ 4.3.12 D.2c |  
 NJ 4.3.12 D.3                   TOP: 8-6 Example 1  
 KEY: simplifying a natural logarithm | the number e | natural logarithmic function | inverse functions

57. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-6 Natural Logarithms  
 OBJ: 8-6.1 Natural Logarithms  
 NAT: NAEP A3a| CAT5.LV21/22.50| CAT5.LV21/22.51| CAT5.LV21/22.52| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.11|  
 TV.LV21/22.12| TV.LV21/22.52| TV.LVALG.53| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 D.1 | NJ 4.3.12 B.1 | NJ 4.3.12 C.1f | NJ 4.3.12 D.2c |  
 NJ 4.3.12 D.3           TOP: 8-6 Example 2  
 KEY: simplifying a natural logarithm | logarithmic function | problem solving
58. ANS: C                   PTS: 1                   DIF: L2                   REF: 9-4 Rational Expressions  
 OBJ: 9-4.1 Simplifying Rational Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.NS|  
 S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52|  
 TV.LVALG.53  
 STA: NJ 4.1.12 B.1 | NJ 4.3.12 B.1 | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c | NJ 4.3.12 D.3  
 TOP: 9-4 Example 1  
 KEY: rational expression | simplifying a rational expression | restrictions on a variable
59. ANS: D                   PTS: 1                   DIF: L2                   REF: 9-4 Rational Expressions  
 OBJ: 9-4.2 Multiplying and Dividing Rational Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.NS|  
 S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52|  
 TV.LVALG.53  
 STA: NJ 4.1.12 B.1 | NJ 4.3.12 B.1 | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c | NJ 4.3.12 D.3  
 TOP: 9-4 Example 3  
 KEY: simplifying a rational expression | restrictions on a variable | multiplying rational expressions
60. ANS: C                   PTS: 1                   DIF: L3                   REF: 9-4 Rational Expressions  
 OBJ: 9-4.2 Multiplying and Dividing Rational Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.56| IT.LV17/18.AM| S9.TSK3.GM| S9.TSK3.NS|  
 S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS| S10.TSK3.PRA| TV.LV21/22.14| TV.LV21/22.52|  
 TV.LVALG.53  
 STA: NJ 4.1.12 B.1 | NJ 4.3.12 B.1 | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c | NJ 4.3.12 D.3  
 TOP: 9-4 Example 4                   KEY: restrictions on a variable | dividing rational expressions
61. ANS: D                   PTS: 1                   DIF: L2  
 REF: 9-5 Adding and Subtracting Rational Expressions  
 OBJ: 9-5.1 Adding and Subtracting Rational Expressions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS|  
 S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.13| TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 B.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c  
 TOP: 9-5 Example 4  
 KEY: simplifying a rational expression | subtracting rational expressions
62. ANS: C                   PTS: 1                   DIF: L2  
 REF: 9-5 Adding and Subtracting Rational Expressions  
 OBJ: 9-5.2 Simplifying Complex Fractions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS|  
 S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.13| TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 B.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c  
 TOP: 9-5 Example 5                   KEY: complex fraction | simplifying a rational expression

63. ANS: D                   PTS: 1                   DIF: L2  
 REF: 9-5 Adding and Subtracting Rational Expressions  
 OBJ: 9-5.2 Simplifying Complex Fractions  
 NAT: NAEP A3b| CAT5.LV21/22.50| CAT5.LV21/22.52| CAT5.LV21/22.55| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.NS| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.NS|  
 S10.TSK3.PRA| TV.LV21/22.12| TV.LV21/22.13| TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 B.1 | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c  
 TOP: 9-5 Example 5  
 KEY: dividing rational expressions | simplifying a complex fraction
64. ANS: A                   PTS: 1                   DIF: L2                   REF: 9-6 Solving Rational Equations  
 OBJ: 9-6.1 Solving Rational Equations  
 NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP|  
 IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13|  
 TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.3.12 B.2g | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c |  
 NJ 4.3.12 D.2c | NJ 4.3.12 D.3                   TOP: 9-6 Example 2  
 KEY: rational equation | no solutions
65. ANS: C                   PTS: 1                   DIF: L2                   REF: 9-6 Solving Rational Equations  
 OBJ: 9-6.1 Solving Rational Equations  
 NAT: NAEP A4a| CAT5.LV21/22.50| CAT5.LV21/22.55| IT.LV17/18.AM| IT.LV17/18.CP|  
 IT.LV17/18.PS| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.13|  
 TV.LV21/22.17| TV.LV21/22.52| TV.LVALG.53  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.3.12 B.2g | NJ 4.3.12 D.1a | NJ 4.3.12 D.1b | NJ 4.3.12 D.1c |  
 NJ 4.3.12 D.2c | NJ 4.3.12 D.3                   TOP: 9-6 Example 2  
 KEY: rational equation
66. ANS: B                   PTS: 1                   DIF: L2                   REF: 10-3 Circles  
 OBJ: 10-3.1 Writing the Equation of a Circle  
 NAT: NAEP G4d| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14|  
 TV.LV21/22.52| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 B.1 | NJ 4.2.12 C.1a | NJ 4.3.12 B.1  
 TOP: 10-3 Example 3  
 KEY: circle | equation of a circle | graphing | center of a circle | radius
67. ANS: D                   PTS: 1                   DIF: L2                   REF: 10-3 Circles  
 OBJ: 10-3.2 Using the Center and Radius of a Circle  
 NAT: NAEP G4d| CAT5.LV21/22.50| CAT5.LV21/22.55| CAT5.LV21/22.56| IT.LV17/18.AM|  
 IT.LV17/18.CP| S9.TSK3.GM| S9.TSK3.PRA| S10.TSK3.GM| S10.TSK3.PRA| TV.LV21/22.14|  
 TV.LV21/22.52| TV.LVALG.56  
 STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 B.1 | NJ 4.2.12 C.1a | NJ 4.3.12 B.1  
 TOP: 10-3 Example 4  
 KEY: center of a circle | circle | equation of a circle | radius | translation