MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the mean for the list of numbers.

1) Annual sales bonuses: $1450, $4460, $6940, $7240, $1880, $6250
   Round answer to the nearest whole number if necessary.
   A) $7240  B) $6940  C) $4703  D) $4702
   Answer: C
   Objective: (7.3) Find the Mean of a Set of Numbers

Solve the equation. Check your solution.

2) \(-7x - 7 = 1 + 9x\)
   A) \(-\frac{1}{3}\)  B) \(-2\)  C) \(2\)  D) \(-\frac{1}{2}\)
   Answer: D
   Objective: (8.3) Solve a Linear Equation with the Variable on Both Sides of the Equation

3) \(3x - 8 = 4(x + 1)\)
   A) \{12\}  B) \{-4\}  C) \{-12\}  D) \{4\}
   Answer: C
   Objective: (8.3) Solve a Linear Equation with the Variable on Both Sides of the Equation

4) \(\frac{5x}{2} + 3 = \frac{1}{7}\)
   A) \(\left\{\frac{2}{5}\right\}\)  B) \(\left\{-\frac{8}{7}\right\}\)  C) \(\left\{-\frac{41}{35}\right\}\)  D) \(\left\{\frac{33}{35}\right\}\)
   Answer: B
   Objective: (8.4) Use the Least Common Denominator to Solve a Linear Equation Containing Fractions

5) \(\frac{13}{10}x + \frac{6}{5} = \frac{6}{5}x\)
   A) \{12\}  B) \{24\}  C) \{-24\}  D) \{-12\}
   Answer: D
   Objective: (8.4) Use the Least Common Denominator to Solve a Linear Equation Containing Fractions

6) \(\frac{r + 6}{5} = \frac{r + 8}{7}\)
   A) \{1\}  B) \{-2\}  C) \{-1\}  D) \{2\}
   Answer: C
   Objective: (8.4) Use the Least Common Denominator to Solve a Linear Equation Containing Fractions
Substitute the given values into the formula and then evaluate to find the unknown quantity. Label units in your answer. If the answer is not exact, round your answer to the nearest hundredth.

7) \( P = 2L + 2W; \ P = 28, \ W = 9 \)
   A) 14 units   B) 5 units   C) 9.5 units   D) 19 units
   Answer: B
   Objective: (8.5) Evaluate a Formula
   final027 interactmath 8.4 #35

8) Use the formula \( C = \frac{5}{9}(F - 32) \) to convert 167° F to degrees Celsius.
   A) 110.6° C   B) 60.8° C   C) 332.6° C   D) 75° C
   Answer: D
   Objective: (8.5) Evaluate a Formula
   final030 interactmath 8.4 #29

Solve the problem.

9) The area of a circle with radius \( r \) is given by the formula \( A = \pi r^2 \). Find the area of a circle with radius 7 centimeters. Use 3.14 for \( \pi \).
   A) 153.86 cm²   B) 10.14 cm²   C) 69.02 cm²   D) 21.98 cm²
   Answer: A
   Objective: (8.5) Evaluate a Formula
   final032 interactmath 8.4 #39b

10) \( 14x + 9y = 10 \)
    A) \( y = \frac{10 - 14x}{9} \)   B) \( y = \frac{14x - 10}{9} \)   C) \( y = \frac{14x - 10}{9} \)   D) \( y = \frac{14x + 10}{9} \)
    Answer: A
    Objective: (8.5) Solve a Formula for a Variable
    final041 interactmath 8.4 #61

Solve the problem.

11) The sum of a number and three is negative eleven. Find the number.
    A) 14   B) -14   C) -8   D) 0
    Answer: B
    Objective: (8.6) Build Models for Solving Direct Translation Problems
    final042 interactmath 8.5 #61

12) A rectangular carpet has a perimeter of 198 inches. The length of the carpet is 61 inches more than the width. What are the dimensions of the carpet?
    A) 80 by 99 inches   B) 59 by 78 inches
    C) 89.5 by 99 inches   D) 80 by 19 inches
    Answer: D
    Objective: (8.8) Use Geometry Formulas to Solve Problems
    final052 interactmath 8.7 #37
Solve the inequality and express the solution set in interval notation. Graph the solution set on the real number line.

13) $6x - 2 < 7(x - 3)$

- $A) (-23, ∞)$
- $B) (-∞, -19)$
- $C) (19, ∞)$
- $D) (-∞, 23)$

Answer: C

Objective: (8.9) Solve Linear Inequalities Using Properties of Inequality

Solve the problem.

14) Find an ordered pair that satisfies the equation $4x + y = -34$ by letting $x = -9$.

- $A) (-9, -9)$
- $B) (-9, 2)$
- $C) (-9, -38)$
- $D) (2, -9)$

Answer: B

Objective: (9.2) Determine If an Ordered Pair Satisfies an Equation

Use the slope and $y$-intercept to graph the equation.

15) $y = \frac{1}{2}x + 5$
Answer: D  

**Objective:** (9.5) Graph a Line Whose Equation Is in Slope-Intercept Form  
final092 interactmath 9.4 #45

**Solve the system of equations using substitution.**

16) \[
\begin{align*}
    x + y &= -6 \\
    y &= 2x
\end{align*}
\]
A) \((-2, 4)\)  
B) \((-2, -4)\)  
C) \((2, 4)\)  
D) \((2, -4)\)

Answer: B  

**Objective:** (10.3) Solve a System of Linear Equations Using the Substitution Method  
final102 interactmath 10.2 #13,35

**Solve the system of equations using elimination.**

17) \[
\begin{align*}
    3x + y &= -30 \\
    5x - y &= 6
\end{align*}
\]
A) \((-3, -21)\)  
B) no solution  
C) infinitely many solutions  
D) \((-21, -3)\)

Answer: A  

**Objective:** (10.4) Solve a System of Linear Equations Using the Elimination Method  
final103 interactmath 10.3 #15

**Subtract the polynomials. Express your answer in standard form.**

18) \((7x^2 + 20x + 5) - (5x^2 - 4x - 12)\)
A) \(2x^2 + 24x - 7\)  
B) \(2x^2 + 25x - 7\)  
C) \(43x^9\)  
D) \(2x^2 + 24x + 17\)

Answer: D  

**Objective:** (11.2) Simplify Polynomials by Combining Like Terms  
final109 interactmath 11.1 #73,75
Evaluate the polynomial for the given value.

19) \(-2x^2 + 8x - 3\) \(x = -3\)
   A) 39  B) 3  C) -9  D) -45
   Answer: D
   
   Objective: (11.2) Evaluate Polynomials
   final110 interactmath 11.1 #85

Simplify the expression.

20) \((-8x^2y^8z)^2\)
   A) -8x^{11}y^{10}z  B) -64x^{18}y^{16}z^2  C) 16x^{18}y^{16}z^2  D) 64x^{18}y^{16}z^2
   Answer: D
   
   Objective: (11.3) Simplify Exponential Expressions Containing Products
   final111 interactmath 11.2 #49

Multiply the monomials.

21) \((7x^6y)(8x^2y^4)\)
   A) 56x^{8}y^{5}  B) 56x^{8}y^{4}  C) 56x^{12}y^{4}  D) 15x^{8}y^{4}
   Answer: A
   
   Objective: (11.3) Multiply a Monomial by a Monomial
   final113 interactmath 11.2 #63

Use the Distributive Property to find the product.

22) \(2y^2(3y^2 + 3y - 7)\)
   A) 6y^4 + 6y - 14  B) 5y^4 + 5y - 5  C) 6y^4 + 6y^3 - 14y^2  D) 6y^4 + 6y^2 - 14
   Answer: C
   
   Objective: (11.4) Multiply a Polynomial by a Monomial
   final116 interactmath 11.3 #39

Find the product of the sum and difference of two terms.

23) \((2x + 5y)(2x - 5y)\)
   A) 4x^2 - 20xy - 25y^2  B) 4x^2 + 25y^2  C) 4x^2 + 20xy - 25y^2  D) 4x^2 - 25y^2
   Answer: D
   
   Objective: (11.4) Multiply the Sum and Difference of Two Terms
   final126 interactmath 11.3 #65

Find the product.

24) \((6x - 11y)^2\)
   A) 36x^2 + 121y^2  B) 6x^2 + 121y^2  C) 36x^2 - 132xy + 121y^2  D) 6x^2 - 132xy + 121y^2
   Answer: C
   
   Objective: (11.4) Square a Binomial
   final130 interactmath 11.3 #79

Use the Quotient Rule to simplify. All variables are nonzero.

25) \(\frac{56m^{20}n^{14}}{7m^{19}n^{10}}\)
   A) 8n^4  B) 8mn^4  C) 56mn^4  D) 8m^{39}n^{24}
   Answer: B
   
   Objective: (11.5) Simplify Exponential Expressions Using the Quotient Rule
   final135 interactmath 11.4 #41
Use the Quotient to a Power Rule to simplify. All variables are nonzero.

26) \( \frac{5^3}{6} \)

A) \( \frac{6}{125} \)  
B) \( \frac{125}{6} \)  
C) \( \frac{216}{125} \)  
D) \( \frac{125}{216} \)

Answer: D

Objective: (11.5) Simplify Exponential Expressions Using the Quotient to a Power Rule

Use the Negative Exponent Rules to simplify. Write the answer with positive exponents. All variables are nonzero.

27) \( 3^{-4} \)

A) -81  
B) \( \frac{1}{81} \)  
C) \( \frac{1}{12} \)  
D) 81

Answer: B

Objective: (11.5) Simplify Exponential Expressions Using Negative Exponents

Divide and simplify.

28) \( \frac{21r^7 - 35r^4}{7r} \)

A) \( 3r^8 - 5r^5 \)  
B) \( 3r^6 - 5r^3 \)  
C) \( 21r^6 - 35r^3 \)  
D) \( 3r^7 - 5r^4 \)

Answer: B

Objective: (11.6) Divide a Polynomial by a Monomial

Factor the GCF from the polynomial.

29) \( 20x^5y + 36xy^6 \)

A) \( 4y(5x^5 + 9xy^5) \)  
B) \( 4xy(5x^4 + 9y^5) \)  
C) \( xy(20x^4 + 36y^5) \)  
D) \( 4x(5x^4y + 9y^6) \)

Answer: B

Objective: (12.2) Factor Out the Greatest Common Factor in Polynomials

Factor the trinomial completely. If the trinomial cannot be factored, say it is prime.

30) \( x^2 + x - 20 \)

A) \( (x - 5)(x + 4) \)  
B) \( (x + 1)(x - 20) \)  
C) prime  
D) \( (x - 4)(x + 5) \)

Answer: D

Objective: (12.3) Factor Trinomials of the Form \( x^2 + bx + c \)

31) \( x^2 - x - 12 \)

A) \( (x + 3)(x - 4) \)  
B) \( (x + 1)(x - 12) \)  
C) \( (x + 4)(x - 3) \)  
D) prime

Answer: A

Objective: (12.3) Factor Trinomials of the Form \( x^2 + bx + c \)

32) \( x^2 - 6x + 8 \)

A) \( (x - 4)(x - 2) \)  
B) \( (x + 4)(x - 2) \)  
C) prime  
D) \( (x + 4)(x + 1) \)

Answer: A

Objective: (12.3) Factor Trinomials of the Form \( x^2 + bx + c \)
33) \(4x^2 + 12x - 40\)

A) \(4(x + 2)(x - 5)\)  
B) \(4(x - 2)(x + 5)\)  
C) \((4x + 8)(x - 5)\)  
D) \((x - 2)(4x + 20)\)

Answer: B

Objective: (12.3) Factor Out the GCF, Then Factor \(x^2 + bx + c\)

Factor the polynomial completely using the trial and error method.

34) \(6x^2 - x - 7\)

A) \((6x - 1)(x + 7)\)  
B) \((6x - 7)(x + 1)\)  
C) \((6x + 1)(x - 7)\)  
D) \((6x + 7)(x - 1)\)

Answer: B

Objective: (12.4) Factor \(ax^2 + bx + c, a \neq 1,\) Using Trial and Error

Factor completely. If the polynomial is prime, state so.

35) \(4x^2 - \frac{4}{9}\)

A) \(2x + \frac{2}{3}\)(\(2x - \frac{2}{3}\))  
B) \(2x - \frac{2}{3}\)(\(2x + \frac{2}{3}\))  
C) \(4x + \frac{4}{9}\)(\(4x - \frac{2}{9}\))  
D) \(4x - \frac{2}{9}\)(\(4x + \frac{2}{9}\))

Answer: D

Objective: (12.5) Factor Difference of Two Squares

36) \(81x^2 - 16y^2\)

A) \((9x + 4y)(9x - 4y)\)  
B) prime  
C) \((9x + 4y)^2\)  
D) \((9x - 4y)^2\)

Answer: A

Objective: (12.5) Factor Difference of Two Squares

Factor completely. If a polynomial cannot be factored, say it is prime.

37) \(x^3 - 5x^2 - 6x\)

A) \(x(x - 6)(x + 1)\)  
B) \(x(x - 6)(x - 1)\)  
C) \(x(x^2 - 5x - 6)\)  
D) \(x(x + 6)(x + 1)\)

Answer: A

Objective: (12.6) Factor Polynomials Completely

38) \(5y^3 - 5y^2 - 100y\)

A) \(5y(y - 4)(y + 5)\)  
B) \((y - 4)(5y^2 + 25)\)  
C) \(5y(y + 4)(y - 5)\)  
D) \((5y^2 + 20y)(y - 5)\)

Answer: C

Objective: (12.6) Factor Polynomials Completely

Solve the equation by factoring.

39) \(x(4x + 12) = 0\)

A) \(\left\{0, \frac{1}{3}\right\}\)  
B) \(\{0, 3\}\)  
C) \(\{0, -3\}\)  
D) \(\left\{0, -\frac{1}{3}\right\}\)

Answer: C

Objective: (12.7) Solve Quadratic Equations Using the Zero-Product Property
40) \(5x(6x + 30) = 0\)

\[\begin{align*}
A) \{0, -5\} & \quad B) \{0, -5, 5\} & \quad C) \left\{0, -\frac{1}{5}\right\} & \quad D) \{0, 5\}
\end{align*}\]

Answer: A

Objective: (12.7) Solve Quadratic Equations Using the Zero-Product Property

41) \(x^2 + 2x - 48 = 0\)

\[\begin{align*}
A) \{-8, 6\} & \quad B) \{8, -6\} & \quad C) \{8, 6\} & \quad D) \{-8, 1\}
\end{align*}\]

Answer: A

Objective: (12.7) Solve Quadratic Equations Using the Zero-Product Property

42) \(x^2 - 17x + 72 = 0\)

\[\begin{align*}
A) \{-9, -8\} & \quad B) \{9, 8\} & \quad C) \{72, 0\} & \quad D) \{-9, 8\}
\end{align*}\]

Answer: B

Objective: (12.7) Solve Quadratic Equations Using the Zero-Product Property

43) \(2x^2 - 3x - 5 = 0\)

\[\begin{align*}
A) \left\{\frac{2}{5}, 0\right\} & \quad B) \left\{\frac{2}{5}, -1\right\} & \quad C) \left\{\frac{5}{2}, -1\right\} & \quad D) \left\{\frac{2}{5}, 1\right\}
\end{align*}\]

Answer: C

Objective: (12.7) Solve Quadratic Equations Using the Zero-Product Property

44) \(x^2 - x = 42\)

\[\begin{align*}
A) \{6, 7\} & \quad B) \{-6, -7\} & \quad C) \{1, 42\} & \quad D) \{-6, 7\}
\end{align*}\]

Answer: D

Objective: (12.7) Solve Quadratic Equations Using the Zero-Product Property

45) \(x^2 = 2x\)

\[\begin{align*}
A) \{2\} & \quad B) \{0, -2\} & \quad C) \{0, 2\} & \quad D) \{-2\}
\end{align*}\]

Answer: C

Objective: (12.7) Solve Quadratic Equations Using the Zero-Product Property

Perform the indicated operation.

46) \(\frac{8m^2p^3}{33p^4} \cdot \frac{11mp^3}{24m^2}\)

\[\begin{align*}
A) \frac{m^4}{9} & \quad B) \frac{1}{9m^{10}} & \quad C) \frac{m^{10}}{9} & \quad D) \frac{1}{9m^4}
\end{align*}\]

Answer: D

Objective: (13.3) Multiply Rational Expressions
Solve the equation and state the solution set.

47) \( \frac{3}{x} - \frac{1}{4} = \frac{5}{x} \)

\[ \text{A) } \left\{ \frac{5}{3} \right\} \quad \text{B) } \{2\} \quad \text{C) } \{-8\} \quad \text{D) } \{8\} \]

Answer: C

Objective: (13.8) Solve Equations Containing Rational Expressions

Find the function value.

48) Find \( f(3) \) when \( f(x) = x^2 + 3x - 4 \).

\[ \text{A) } -4 \quad \text{B) } 4 \quad \text{C) } 22 \quad \text{D) } 14 \]

Answer: D

Objective: (14.4) Find the Value of a Function

49) Find \( f(-9) \) when \( f(x) = |x| - 6 \).

\[ \text{A) } 3 \quad \text{B) } -3 \quad \text{C) } 15 \quad \text{D) } -15 \]

Answer: A

Objective: (14.4) Find the Value of a Function

50) \( f(x) = \frac{x + 5}{14x - 10} \); \( f(-10) \)

\[ \text{A) } \frac{1}{26} \quad \text{B) } -\frac{1}{12} \quad \text{C) } \frac{1}{30} \quad \text{D) } -\frac{1}{30} \]

Answer: C

Objective: (14.4) Find the Value of a Function

Graph the function.

51) \( h(x) = x^2 - 1 \)
Evaluate the radical function at the indicated value.

52) \( f(x) = \sqrt{2x - 1} \)

\( f(13) \)

A) 25  
B) 26  
C) 5  
D) 5.1

Answer: C  
Objectives: (14.5) Graph a Function  
fin194 interactmath 14.1 #39

Solve the equation.

53) \( \sqrt{2x} = 6 \)

A) \( \{3\} \)  
B) \{72\}  
C) \{12\}  
D) \{18\}

Answer: D  
Objectives: (15.8) Evaluate Functions Whose Rule Is a Radical Expression  
final205 interactmath 15.7 #11

54) \( \sqrt{x + 5} = 6 \)

A) \{41\}  
B) \{121\}  
C) \{36\}  
D) \{31\}

Answer: D  
Objectives: (15.9) Solve Radical Equations Containing One Radical  
final206 interactmath 15.8 #13
Use the square root property to solve the equation.

55) $x^2 = 196$
   A) $\{-14, 14\}$  B) $\{-15, 15\}$  C) $\{14\}$  D) $\{98\}$
   Answer: A
   Objective: (16.2) Solve Quadratic Equations Using the Square Root Property

56) $(x - 7)^2 = 4$
   A) $\{9, 5\}$  B) $\{2, -2\}$  C) $\{11\}$  D) $\{5, -9\}$
   Answer: A
   Objective: (16.2) Solve Quadratic Equations Using the Square Root Property

Use the quadratic formula to solve the equation.

57) $x^2 + 6x - 7 = 0$
   A) $\{7, 1\}$  B) $\{7, -1\}$  C) $\{-7, 1\}$  D) $\{-7, 0\}$
   Answer: C
   Objective: (16.3) Solve Quadratic Equations Using the Quadratic Formula

58) $x^2 + 12x + 14 = 0$
   A) $\{6 + \sqrt{22}\}$  B) $\{6 - \sqrt{14}, 6 + \sqrt{14}\}$
   C) $\{-6 - \sqrt{22}, -6 + \sqrt{22}\}$  D) $\{-12 + \sqrt{14}\}$
   Answer: C
   Objective: (16.3) Solve Quadratic Equations Using the Quadratic Formula

Sketch the graph of the quadratic function.

59) $f(x) = x^2 + 3$
Answer: B

Objective: (16.5) Graph Quadratic Functions of the Form \( f(x) = x^2 + k \)

Sketch the graph of the quadratic function. Identify the vertex and axis of symmetry.

60) \( f(x) = (x + 2)^2 - 4 \)

A) vertex: \((-2, -4)\)
axis of symmetry: \(x = -2\)

B) vertex: \((2, -4)\)
axis of symmetry: \(x = 2\)
C) vertex: (-2, -4)
axis of symmetry: x = -2

D) vertex: (2, -4)
axis of symmetry: x = 2

Answer: A

Objective: (16.5) Graph Quadratic Functions of the Form f(x) = (x - h)^2
fin229 interactmath 16.4 #41

Graph the quadratic function.
61) f(x) = -x^2 + 4x - 3

61) _______
Answer: B

Objective: (16.5) Graph Quadratic Functions of the Form $f(x) = ax^2 + bx + c$

fin231 interactmath 16.5 #35
Answer Key
Testname: AATSI61ONLINE

1) C
2) D
3) C
4) B
5) D
6) C
7) B
8) D
9) A
10) A
11) B
12) D
13) C
14) B
15) D
16) B
17) A
18) D
19) D
20) D
21) A
22) C
23) D
24) C
25) B
26) D
27) B
28) B
29) B
30) D
31) A
32) A
33) B
34) B
35) D
36) A
37) A
38) C
39) C
40) A
41) A
42) B
43) C
44) D
45) C
46) D
47) C
48) D
49) A
50) C
Answer Key
Testname: AATSI61ONLINE

51) A
52) C
53) D
54) D
55) A
56) A
57) C
58) C
59) B
60) A
61) B