1.

Identify the degree of each term of the polynomial and the degree of the polynomial.

$$-6x^3 + 7x^2 + 9x + 9$$

The degree of the first term is ☐.

The degree of the second term is ☐.

The degree of the third term is ☐.

The degree of the fourth term is ☐.

The degree of the polynomial is ☐.

2.

Solve for x.

$$4x(x-1)-5x(x)=3$$

$x = $ ☐

(Simplify your answers. Use a comma to separate answers. Type N if there is no solution.)

3.

Rewrite the following expression with positive exponents.

$$(42xy)^{-4/7}$$

Choose the correct equivalent expression.

A. $(42xy)^{-4/7} = \dfrac{1}{(42xy)^{4/7}}$

B. $(42xy)^{-4/7} = -(42xy)^{4/7}$

C. $(42xy)^{-4/7} = \dfrac{1}{(42xy)^{7/4}}$
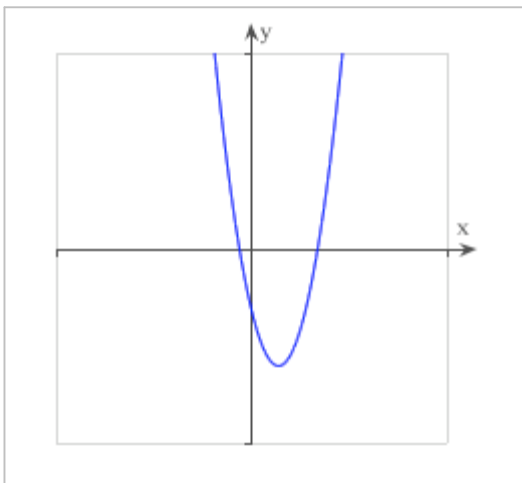
D. $(42xy)^{-4/7} = (42xy)^{7/4}$

4.

Find the x-intercepts for the graph of the equation $y = x^2 - 4x - 5$.

The x-intercepts are ☐.

(Type an ordered pair. Use a comma to separate answers.)

5.

Multiply.

$$\left(v + \frac{1}{4}\right)\left(v + \frac{1}{2}\right)$$

$$\left(v + \frac{1}{4}\right)\left(v + \frac{1}{2}\right) = \boxed{}$$

(Simplify your answer.)

6.

Factor completely.

$$9c^2 + 49 - 42c$$

$$9c^2 + 49 - 42c = \boxed{}$$

(Type N if the expression is not factorable.)

7.

Convert to decimal notation.

$$8.92 \times 10^7$$

$$8.92 \times 10^7 = \boxed{}$$

(Simplify your answer. Type an integer or a decimal.)

8.

Multiply.

$$(4\sqrt{5} - 8\sqrt{6})(2\sqrt{5} + 4\sqrt{6})$$

$$(4\sqrt{5} - 8\sqrt{6})(2\sqrt{5} + 4\sqrt{6}) = \boxed{}$$
(Simplify your answer. Type an exact answer, using radicals as needed.)

9.

If a pro basketball player has a vertical leap of about 30 inches, what is his hang time? Use the hang-time function $V = 48\,T^2$.

His hang time is $\boxed{}$ seconds.
(Simplify your answer. Type an integer or a decimal. Round to the nearest tenth.)

10.

Multiply and simplify.

$$\frac{9a^2}{2a^2 - 8a + 8} \cdot \frac{2a - 4}{3a}$$

$$\frac{9a^2}{2a^2 - 8a + 8} \cdot \frac{2a - 4}{3a} = \boxed{}$$
(Type exponential notation with positive exponents.)

11.

Express using a positive exponent.

$$t^{-8}$$

$$t^{-8} = \boxed{}$$
(Simplify your answer. Type a positive exponent.)

12.

a) Solve $3x^2 = 6$.

b) Find the x-intercepts of $f(x) = 3x^2 - 6$.
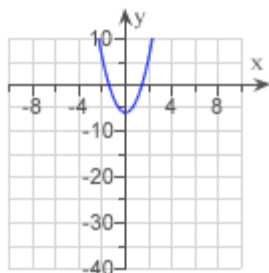
a) What are the solutions?

$x = \boxed{}$

(Type an exact answer, using radicals as needed. Rationalize all denominators. Express complex numbers in terms of i. Use a comma to separate answers as needed.)

b) What are the x-intercepts?

$\boxed{}$

(Type an ordered pair. Type an exact answer, using radicals as needed. Rationalize all denominators. Express complex numbers in terms of i.Use a comma to separate answers as needed. Type N if there are no x-intercepts.)

13.

Subtract. Simplify by collecting like radical terms if possible.

$5\sqrt{27} - 9\sqrt{3}$

$5\sqrt{27} - 9\sqrt{3} = \boxed{}$

(Simplify your answer. Type an exact answer, using radicals as needed.)

14.

Multiply and simplify by factoring. Assume that all expressions under radicals represent nonnegative numbers.

$\sqrt[3]{y^{10}} \ \sqrt[3]{16y^{11}}$

$\sqrt[3]{y^{10}} \ \sqrt[3]{16y^{11}} = \boxed{}$

(Simplify your answer. Type in radical form.)

15.

Factor the trinomial.

$b^3 - 2b^2 - 15b$

The answer is $\boxed{}$.

(Type N if the trinomial is not factorable.)

Student: _____
Date: _____
**Time:** _____

Instructor: Axia Administrator
Course: MAT/117
Book: Bittinger: Introductory and Intermediate Algebra, 3e ENHANCED

Assignment: Week 9 Assignment: Cumulative Final Part A

16.

Add.

$$(2x^2 - 9xy + y^2) + (-7x^2 - 6xy - y^2) + (x^2 + xy - 8y^2)$$

The answer is $\boxed{}$.

17.

Use rational exponents to write $x^{1/9} \cdot y^{1/3} \cdot z^{1/4}$ as a single radical expression.

Choose the correct expression below.

- A. $\sqrt[36]{xyz}$
- B. $\sqrt[108]{xyz}$
- C. $\sqrt[36]{(xyz)^{25}}$
- D. $\sqrt[36]{x^4 y^{12} z^9}$

18.

Add. Simplify if possible.

$$\frac{2x}{x^2 - 25} + \frac{x}{x - 5}$$

$$\frac{2x}{x^2 - 25} + \frac{x}{x - 5} = \boxed{}$$
(Simplify your answer.)

19.

Divide and simplify.

$$\frac{11x - 77}{14} \div \frac{x - 7}{22x}$$

The answer is $\boxed{}$.
(Simplify your answer. Use integers or fractions for any numbers in the expression.)

20.

Multiply.

$(-3x)^2(2x^7)^3$

$(-3x)^2(2x^7)^3 = \boxed{}$

21.

Find the following.

$\sqrt[18]{(-5)^{18}}$

$\sqrt[18]{(-5)^{18}} = \boxed{}$

(Simplify your answer. Type N if the root is not a real number.)

22.

Find all numbers for which the rational expression is undefined.

$\dfrac{m^3 - 2m}{m^2 - 36}$

The numbers for which the rational expression is undefined are $\boxed{}$.

(Use a comma to separate answers.)

23.

Multiply.

$(2x + 2)(6x^2 + 5x + 9)$

The answer is $\boxed{}$.

(Simplify your answer.)

24.

Find the variation constant and an equation of variation where y varies directly as x and $y = 40$ when $x = 5$.

The variation constant is $k = \boxed{}$.

The equation of variation is $y = \boxed{}$.

25.

Write a quadratic equation in the variable x having the given numbers as solutions. Type the equation in standard form, $ax^2 + bx + c = 0$.

Solution: 8, only solution

The equation is $\boxed{} = 0$.

26.

Subtract the polynomials.

$(-9s^2 + 8s + 3) - (7s^2 + 3)$

$(-9s^2 + 8s + 3) - (7s^2 + 3) = \boxed{}$
(Simplify your answer.)

27.

Factor out the greatest common factor.

$8x^4 - 40x^3 + 56x^2$

The factorization is $\boxed{}$.
(Type your answer in factored form.)

28.

Evaluate the polynomial for $x = 0$.

$3x^2 - 2x + 3$

When $x = 0$, $3x^2 - 2x + 3 = \boxed{}$
(Simplify your answer.)

29.

Rationalize the denominator. Assume that all expressions under radicals represent positive numbers.

$\dfrac{\sqrt{r} - \sqrt{s}}{\sqrt{r} + \sqrt{s}}$

$\dfrac{\sqrt{r} - \sqrt{s}}{\sqrt{r} + \sqrt{s}} = \boxed{}$
(Simplify your answer. Type an exact answer, using radicals as needed.)

30.

Solve.

$$\frac{6}{z} = \frac{9}{z} - \frac{1}{3}$$

The solution is ☐.

(Simplify your answer. Type an integer or a fraction. Type N if there is no solution.)

31.

Find the vertex, the line of symmetry, the maximum or minimum value of the quadratic function, and graph the function.

$$f(x) = -2x^2 + 2x + 5$$

The x-coordinate of the vertex is ☐.
(Type a simplified fraction.)

The y-coordinate of the vertex is ☐.
(Type a simplified fraction.)

The equation of the line of symmetry is $x = \boxed{}$.
(Type a simplified fraction.)

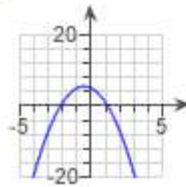The maximum/minimum of f(x) is ☐.
(Type a simplified fraction.)
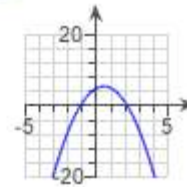
The value, $f\left(\frac{1}{2}\right) = \frac{11}{2}$ is?

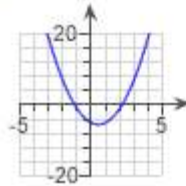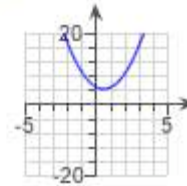○ Minimum
○ Maximum

Choose the correct graph.
○ A.   ○ B.
○ C.   ○ D.

32.

Solve.

$$10x^4 - 19x^2 + 6 = 0$$

The solution is $x = \boxed{}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Rationalize all denominators. Use a comma to separate answers as needed. Type N if there is no solution.)

33.

Use rational exponents to simplify.

$$\sqrt[4]{x^{16}}$$

$$\sqrt[4]{x^{16}} = x^{\boxed{}}$$

(Simplify your answer.)

34.

Find the vertex, the line of symmetry, and the maximum or minimum value of f(x). Graph the function.

$$f(x) = \frac{1}{3}(x+4)^2 + 8$$

The vertex is $\boxed{}$.
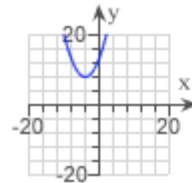
(Type an ordered pair.)

The line of symmetry is $x = \boxed{}$.

What is the maximum/minimum value of f(x)? $\boxed{}$

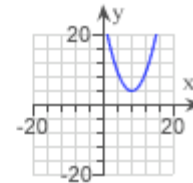Is the value, $f(-4) = 8$, a minimum or maximum?

○ Minimum
○ Maximum

Choose the graph that represents f(x).
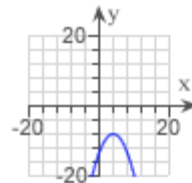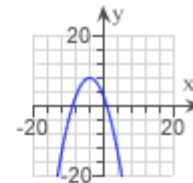
○ A.

○ B.

○ C.

○ D.

35.

Simplify.

$$\sqrt[5]{-\frac{1}{1024}}$$

$$\sqrt[5]{-\frac{1}{1024}} = \boxed{}$$

(Simplify your answer. Type a fraction or an integer. Type N if the root is not a real number.)

36.

For the following equation, state the value of the discriminant and then describe the nature of the solutions.

$$-6x^2 - 3x - 4 = 0$$

What is the value of the discriminant? ☐

Which one of the statements below is correct?
- ○A. The equation has two real solutions.
- ○B. The equation has two imaginary solutions.
- ○C. The equation has one real solution.

37.

Simplify by removing factors of 1.

$$\frac{n^2 - 64}{(n+8)^2}$$

The simplified form is ☐.

38.

Find the greatest common factor for the group of terms.
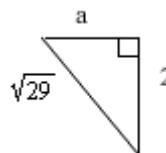
$$-30a^2, 5a^5$$

The greatest common factor is ☐.

39.

In a right triangle, find the length of the side not given.

$$b = 2, c = \sqrt{29}$$

The length of the third side is ☐.
(Simplify your answer. Type an exact answer, using radicals as needed.)

40.

Solve.

$$c^2 + 4c - 12 = 0$$

The solution is $c = $ ☐.
(Use a comma to separate answers. Type N if there is no solution.)

41.

Factor.

$$72 - 18b + b^2$$

$$72 - 18b + b^2 = \boxed{}$$
(Type N if the trinomial is not factorable.)

42.

Solve.

$$v^2 - 2v - 35 = 0$$

The solution is $v = \boxed{}$.
(Use a comma to separate answers. Type N if there is no solution.)

43.

Divide and simplify.

$$\frac{b^3}{b^{18}}$$

$$\frac{b^3}{b^{18}} = \boxed{}$$
(Type exponential notation using positive exponents.)

44.

Solve.

$$(x + 15)(x - 8)(x + 11) > 0$$

The solution set is $\{x| \boxed{} \}$.
(Use at least one inequality or compound inequality to express your answer. For answers with more than one inequality, separate the inequalities by a comma or the word 'or'. Type R if the answer is all real numbers. Type N if there is no solution.)

45.

Use the FOIL method to find the product.

$$(7x^4 - 2)(x^8 - 7)$$

$$(7x^4 - 2)(x^8 - 7) = \boxed{}$$

46.

Perform the indicated operations and simplify.

$$\frac{v-2}{v-6} - \frac{v+1}{v+6} + \frac{v-54}{v^2-36}$$

$$\frac{v-2}{v-6} - \frac{v+1}{v+6} + \frac{v-54}{v^2-36} = \boxed{}$$

47.

Solve.

$$x^2 + 2x - 4 = 0$$

The solution is $x = \boxed{}$.

(Simplify your answer. Use a comma to separate answers. Type exact answers, using radicals as needed. Type N if there is no solution.)

48.

Solve.

$$\sqrt{7x+46} = x+4$$

The solution is $x = \boxed{}$.
(Use a comma to separate answers. Type N if the solution is not a real number.)

49.

Simplify by taking roots of the numerator and the denominator. Assume that all expressions under radicals represent positive numbers.

$$\sqrt[3]{\frac{343x^5}{y^3}}$$

$$\sqrt[3]{\frac{343x^5}{y^3}} = \boxed{}$$

(Type an exact answer, using radicals as needed. Type N if the root is not a real number.)

Student: _____
Date: _____
Time: _____

Instructor: Axia Administrator
Course: MAT/117
Book: Bittinger: Introductory and
Intermediate Algebra, 3e ENHANCED

Assignment: Week 9 Assignment:
Cumulative Final Part A

50.

Factor.

$r^2 + 18r + 81$

$r^2 + 18r + 81 =$ ☐
(Type N if the trinomial is not factorable.)

51.

Add.

$(2v^4 - 2v^3 + 5v^2 + 15v - 11) + (v^5 + 6v^3 + 4v^2 - 5v + 6) + (-5v^4 + v^2 - 5v - 6)$

The answer is ☐.
(Simplify your answer.)

52.

Factor completely.

$49c^2 - 100$

$49c^2 - 100 =$ ☐
(Type N if the binomial is not factorable.)

53.

Multiply.

$(v + g)(v^2 - vg + g^2)$

$(v + g)(v^2 - vg + g^2) =$ ☐
(Simplify your answer.)

54.

Simplify by factoring. Assume that all expressions under radicals represent nonnegative numbers.

$\sqrt{18a^2b}$

$\sqrt{18a^2b} =$ ☐
(Type an exact answer, using radicals as needed.)

55.

Factor completely.

$12r^2 + 36rp + 27p^2$

$12r^2 + 36rp + 27p^2 = \boxed{}$

56.

Subtract. Simplify, if possible.

$$\frac{3-y}{y-5} - \frac{5y-7}{5-y}$$

$\dfrac{3-y}{y-5} - \dfrac{5y-7}{5-y} = \boxed{}$
(Simplify your answer.)

57.

Find a polynomial for the perimeter and for the area.

The perimeter is $\boxed{}$. (Simplify your answer. Do not factor.)

The area is $\boxed{}$. (Simplify your answer. Do not factor.)

58.

Find the following. Assume that variables can represent any real number.

$\sqrt{(a+4)^2}$

$\sqrt{(a+4)^2} = \boxed{}$

59.

Use the quadratic formula to solve the equation.

$$x^2 - 5x = -10$$

The solution set is $\{\ \square\ \}$. (Simplify your answers. Type exact answers, using radicals as needed. Express complex solutions in terms of i. Use commas to separate answers.)

60.

Jack usually mows his lawn in 5 hours. Marilyn can mow the same yard in 6 hours. How much time would it take for them to mow the lawn together?

They could mow the lawn in $\square$ hours if they worked together.
(Simplify your answer. Type an integer, proper fraction, or mixed number.)

61.

Simplify by removing factors of 1.

$$\frac{6p^2 + 6p}{30p^2 + 36p}$$

The simplified form is $\square$.

62.

Divide.

$$(30b^3 + 14b^2 + 32b + 33) \div (5b + 4)$$

Choose the correct answer.

- A. $6b^2 - 2b - 8 - \dfrac{1}{5b+4}$
- B. $6b^2 + 2b + 8$
- C. $6b^2 - 2b + 8 + \dfrac{1}{5b+4}$
- D. $6b + 8$

63.

If the sides of a square are lengthened by 8 cm, the area becomes 225 cm^2. Find the length of a side of the original square.

The length of a side of the original square is $\square$ cm.

64.

Rewrite with a rational exponent.

$\sqrt[3]{19}$

$\sqrt[3]{19} = \square$

(Simplify your answer.)

65.

Multiply and simplify. Assume variables represent nonzero real numbers.

$z^{15} \cdot z^0$

$z^{15} \cdot z^0 = \square$

(Simplify your answer. Type exponential notation with positive exponents.)

66.

Television sets. What does it mean to refer to a 20-in TV set or a 25-in TV set? Such units refer to the diagonal of the screen. A 30-in TV set also has a width of 24 inches. What is its height?

What is the height of a 30-in TV? $\square$ inches