Exam dept final exam review 74 180 questions for elementary algebra m0310 00111011   NEW

Name_____

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SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Determine whether the ordered pair satisfies the equation.

1) $5x + 2y = 26$; $(4, 3)$

1) _____

    Answer: Yes

Determine if the given value is a solution to the equation. Answer Yes or No.

2) $8x - 10 = 15$; $x = 3$

2) _____

    Answer: No

Solve the equation. Check your solution.

3) $-7x - 7 = 1 + 9x$

3) _____

    Answer: $\left\{-\dfrac{1}{2}\right\}$

4) $3x - 8 = 4(x + 1)$

4) _____

    Answer: $\{-12\}$

5) $\dfrac{5x}{2} + 3 = \dfrac{1}{7}$

5) _____

    Answer: $\left\{-\dfrac{8}{7}\right\}$

6) $\dfrac{13}{10}x + \dfrac{6}{5} = \dfrac{6}{5}x$

6) _____

    Answer: $\{-12\}$

7) $\dfrac{r + 6}{5} = \dfrac{r + 8}{7}$

7) _____

    Answer: $\{-1\}$

8) $-46.8 = -5.2x$

8) _____

    Answer: $\{9\}$

9) $x + 7.1x = 234.9$

9) _____

    Answer: $\{29\}$

Solve the equation. State whether the equation is a contradiction, an identity, or a conditional equation.

10) $-7x + 5 + 5x = -2x + 10$

10) _____

    Answer: $\varnothing$ or $\{ \ \}$; contradiction

11) $2(x + 3) = (2x + 6)$ 11) _____

Answer: all real numbers; identity

Solve for y.

12) $14x + 9y = 10$ 12) _____

Answer: $y = \dfrac{10 - 14x}{9}$

Solve the problem.

13) The sum of a number and three is negative eleven. Find the number.   13) _____

Answer: -14

14) Six times a number, added to 18, is 36. Find the number.   14) _____

Answer: 3

15) 2 times a number less than 7 times the same number is 35. Find the number.   15) _____

Answer: 7

Solve the inequality and express the solution set in interval notation. Graph the solution set on the real number line.

16) $-3x > 36$ 16) _____
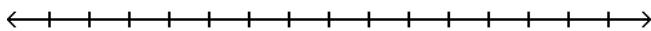
Answer: $(-\infty, -12)$
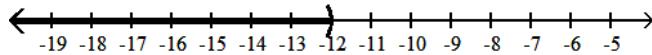
17) $6x + 3 > 5x - 1$ 17) _____
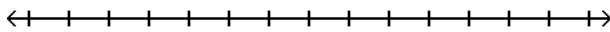
Answer: $(-4, \infty)$
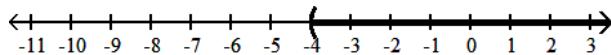
18) $1.4x - 3.8 > 0.7x - 1.07$ 18) _____

Answer: $(3.9, \infty)$

2
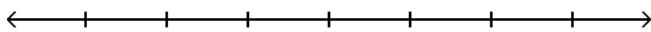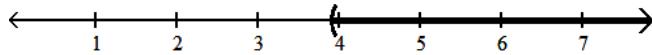
19) $6x - 2 < 7(x - 3)$
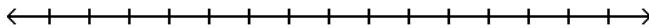

Answer: $(19, \infty)$
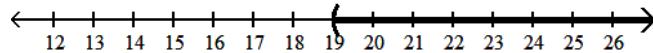

20) $35x + 35 > 5(6x + 6)$
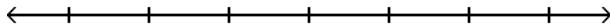


Answer: $(-1, \infty)$
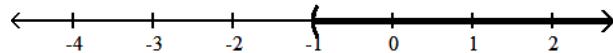

21) $5 - 3(1 - x) \leq 11$
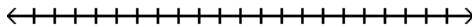
Answer: $(-\infty, 3]$
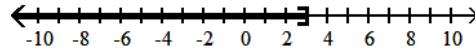
Decide whether or not the ordered pair is a solution to the equation.

22) $4x + 2y = 16$; $(2, 4)$

Answer: Yes

23) $3x - 5y = 35$; $(5, 4)$

Answer: No

Solve the problem.

24) Find an ordered pair that satisfies the equation $y = -x + 9$ by letting $x = 5$.

Answer: $(5, 4)$

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

Answer: $(-9, 2)$

19) _____

20) _____

21) _____

22) _____

23) _____

24) _____

25) _____

Graph the linear equation using the point-plotting method.

26) $y = 2x - 3$

26) _____

Answer:

(1, -1)

(0, -3)

(-1, -5)

27) $y = -3x - 6$

27) _____

Answer:

(1, -3)

-5 (0, -6)

(1, -9)

5
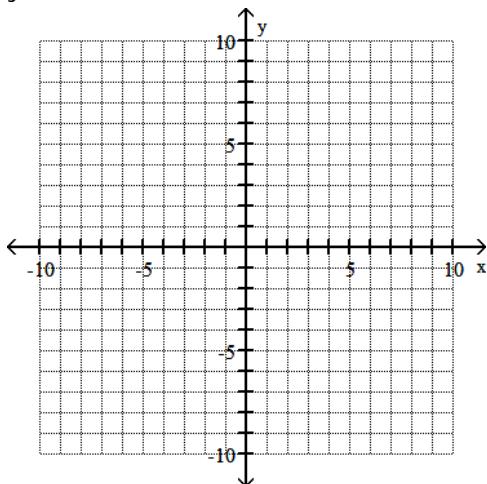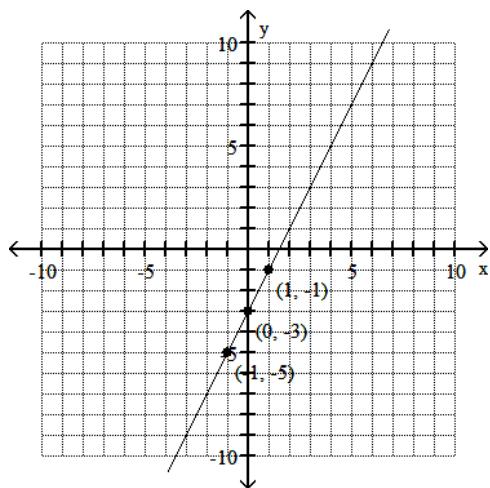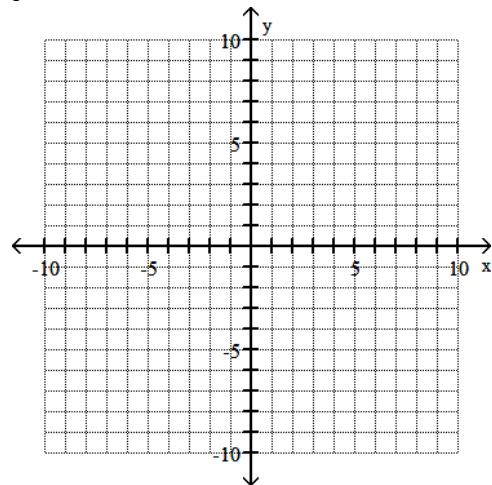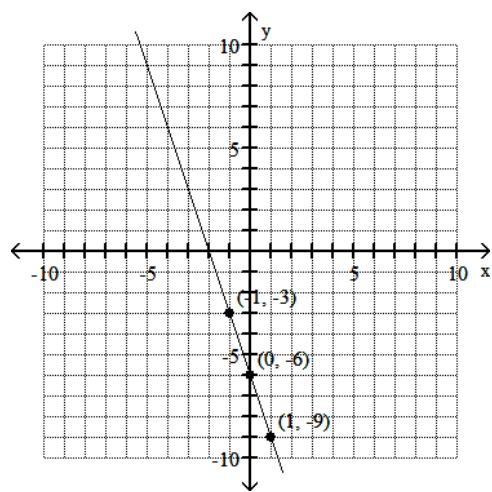
Graph the linear equation by finding and plotting its intercepts.

28) $-5x - 10y = 30$

28) _____
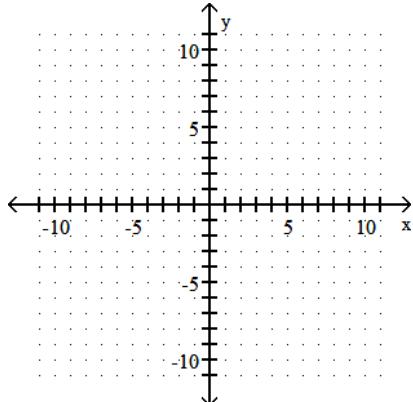
Answer: $(0, -3), (-6, 0)$
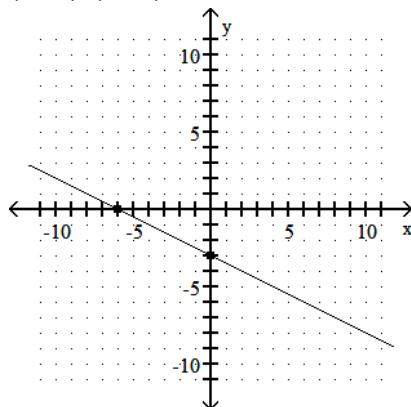
Find the slope of the line containing the two points.

29) $(1, -5)$; $(-9, 6)$

29) _____

Answer: $-\dfrac{11}{10}$

Find the slope and the y-intercept.

30) $y = 3x + 11$

30) _____

Answer: $m = 3; b = 11$

31) $3x + y = 4$

31) _____

Answer: $m = -3; b = 4$

32) $7x - 3y = -11$

32) _____

Answer: $m = \dfrac{7}{3}; b = \dfrac{11}{3}$

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

33) $y = \dfrac{1}{2}x + 5$

33) _____
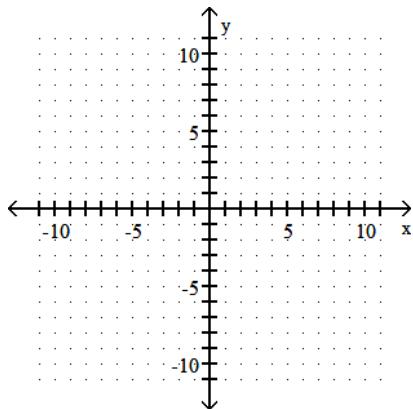
Answer:
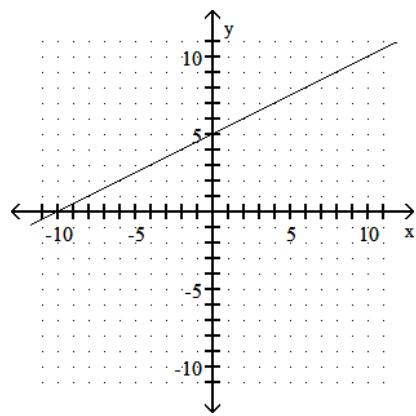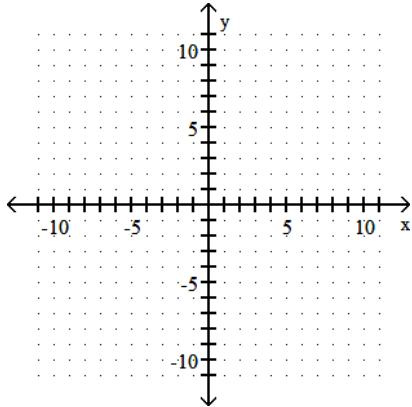
34) $7x + 2y = 14$ 34) _____

Answer:
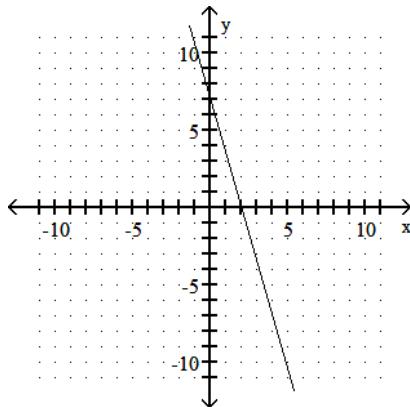
Find the equation of the line with the given slope and intercept.

35) Slope -8; y-intercept is 2   35) _____

Answer: $y = -8x + 2$

Find the equation of the line described. Write the equation in slope-intercept form, if possible.

36) $(4, 3)$; slope = -3   36) _____

Answer: $y = -3x + 15$

Determine if the lines parallel, perpendicular, or neither.

37) L_1: $y = x - 6$ 37) _____

L_2: $y = 2 - x$

Answer: perpendicular

38) L_1: $y = 7x + 9$ 38) _____

L_2: $y = -7x - 3$

Answer: neither

39) L_1: $y = 7x + 5$ 39) _____

L_2: $y = -\frac{1}{7}x + 3$

Answer: perpendicular

40) L_1: $6x + 2y = 8$

L_2: $18x + 6y = 27$

Answer: parallel

Solve the system of equations using substitution.

41) $\begin{cases} x + y = -6 \\ y = 2x \end{cases}$

Answer: $(-2, -4)$

Solve the system of equations using elimination.

42) $\begin{cases} 3x + y = -30 \\ 5x - y = 6 \end{cases}$

Answer: $(-3, -21)$

43) $\begin{cases} x - 4y = 17 \\ -3x - 5y = 51 \end{cases}$

Answer: $(-7, -6)$

Solve the system of equations using elimination. State whether the system is inconsistent, or consistent and dependent.

44) $\begin{cases} x + y = 4 \\ x + y = -6 \end{cases}$

Answer: no solution; inconsistent

Add the polynomials. Express your answer in standard form.

45) $(-2x^2 - 5x - 6) + (8x^2 - 5x + 4)$

Answer: $6x^2 - 10x - 2$

Subtract the polynomials. Express your answer in standard form.

46) $(7x^2 + 20x + 5) - (5x^2 - 4x - 12)$

Answer: $2x^2 + 24x + 17$

Evaluate the polynomial for the given value.

47) $-2x^2 + 8x - 3 \qquad x = -3$

Answer: -45

Simplify the expression.

48) $(-8x^9y^8z)^2$

Answer: $64x^{18}y^{16}z^2$

Multiply the monomials.

49) $(7x^6y)(8x^2y^4)$

Answer: $56x^8y^5$

50) $(m^3n)^4(-4mn^6)$

Answer: $-4m^{13}n^{10}$

40) _____

41) _____

42) _____

43) _____

44) _____

45) _____

46) _____

47) _____

48) _____

49) _____

50) _____

Use the Distributive Property to find the product.

51) $2y^2(3y^2 + 3y - 7)$

Answer: $6y^4 + 6y^3 - 14y^2$

51) _____

52) $(4y - 5)(4y - 3)$

Answer: $16y^2 - 32y + 15$

52) _____

Find the product using the FOIL method.

53) $(y - 1)(y - 4)$

Answer: $y^2 - 5y + 4$

53) _____

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

54) $(7p + 9)(7p - 9)$

Answer: $49p^2 - 81$

54) _____

Find the product.

55) $(6x - 11y)^2$

Answer: $36x^2 - 132xy + 121y^2$

55) _____

Find an algebraic expression that represents the area of the shaded region.

56)
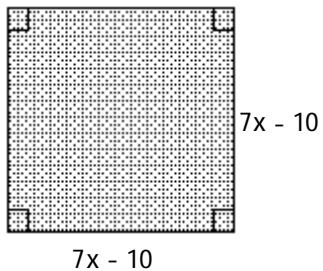
$7x - 10$

$7x - 10$

Answer: $49x^2 - 140x + 100$

56) _____

Find the product.

57) $(2y + 11)(5y^2 - 2y - 9)$

Answer: $10y^3 + 51y^2 - 40y - 99$

57) _____

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

58) $\dfrac{56m^{20}n^{14}}{7m^{19}n^{10}}$

Answer: $8mn^4$

58) _____

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

59) $\left(\dfrac{6t^3}{3s^4}\right)^2$

Answer: $\dfrac{4t^6}{s^8}$

59) _____

Use the Zero Exponent Rule to simplify. All variables are nonzero.

60) 9^0

Answer: 1

60) _____

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

61) 3^{-4}

Answer: $\dfrac{1}{81}$

61) _____

Divide and simplify.

62) $\dfrac{24x^2 + 20x - 11}{4x}$

Answer: $6x + 5 - \dfrac{11}{4x}$

62) _____

Find the quotient using long division.

63) $\dfrac{3m^2 + 17m - 56}{m + 8}$

Answer: $3m - 7$

63) _____

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

64) $x^2 + x - 20$

Answer: $(x - 4)(x + 5)$

64) _____

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

65) $81x^2 - 16y^2$

Answer: $(9x + 4y)(9x - 4y)$

65) _____

Solve the equation by factoring.

66) $5x(6x + 30) = 0$

Answer: $\{0, -5\}$

66) _____

67) $(y - 7)(9y + 26) = 0$

Answer: $\left\{ -\dfrac{26}{9}, 7 \right\}$

67) _____

68) $x^2 + 2x - 48 = 0$

Answer: $\{-8, 6\}$

68) _____

69) $x^2 - 17x + 72 = 0$

Answer: $\{9, 8\}$

69) _____

Find the function value.

70) Find $f(14)$ when $f(x) = 2x + 12$.

Answer: 40

70) _____

71) Find f(5) when f(x) = -7x + 6.

    Answer: -29

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

    Answer: 14

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

    Answer: 3

74) f(x) = $\dfrac{x + 5}{14x - 10}$; f(-10)

    Answer: $\dfrac{1}{30}$

71) _____

72) _____

73) _____

74) _____