Algebra 1 Name_____

Unit 8 Review

Date_____ Period____

Factor the common factor out of each expression.

1) $10b - 14$

2) $4p - 4$

3) $70x + 7$

4) $30a - 27$

5) $72u^5v^4 + 64u^6v^3 + 48u^5v^3$

6) $14x^2y^3 + 35x^3 + 7x^4y$

7) $6x^6y^5 - 3x^4 + 3x^3$

8) $16x^4y^2 + 32xy^3 - 12xy$

Factor each completely.

9) $35x^3 + 25x^2 - 56x - 40$

10) $21m^3 + 3m^2 - 35m - 5$

11) $6p^3 + 7p^2 + 42p + 49$

12) $28a^3 + 35a^2 + 4a + 5$

13) $n^2 + 9n - 10$

14) $a^2 + 2a - 80$

15) $n^2 - 12n + 35$

16) $n^2 + 5n - 6$

17) $n^2 - 9n + 14$

18) $x^2 + 7x - 30$

19) $b^2 - 9b + 20$

20) $v^2 - 2v - 80$

21) $n^2 + 6n - 7$

22) $k^2 + k - 12$

23) $x^2 - 4x - 12$

24) $b^2 - 10b + 21$

25) $p^2 - 5p - 24$

26) $r^2 + 10r + 21$

27) $r^2 + 15r + 50$

28) $r^2 + 17r + 70$

29) $3k^2 - 17k - 56$

30) $3x^2 - 20x - 63$

31) $5n^2 - 32n + 35$

32) $5x^2 - 11x + 2$

33) $5a^2 - 32a - 21$

34) $2n^2 - 13n - 70$

35) $7a^2 + 64a - 60$

36) $5m^2 + 49m + 36$

37) $64a^2 - 1$

38) $81m^2 - 64$

39) $x^2 - 49$

40) $49a^2 - 1$

41) $16k^2 - 1$

42) $100x^2 - 1$

43) $64n^2 - 81$

44) $81p^2 - 100$

Name each polynomial by degree and number of terms.

45) $-3x^4$

46) $-3n^4 + 5n^3 - 2n^2$

47) $-m + 7$

48) $10k^3$

49) $-7m^2 - 5m - 6$

50) $-6x^4 + 3x^2$

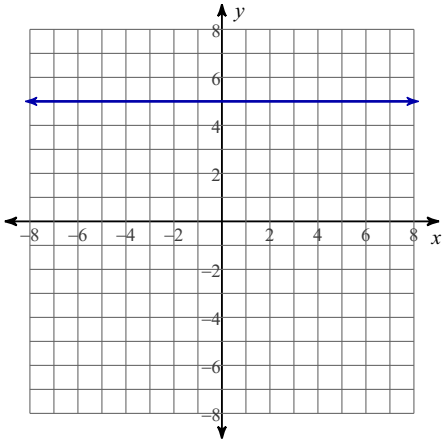
Write the standard form of the equation of each line.

51) $y = \frac{11}{3}x + 5$

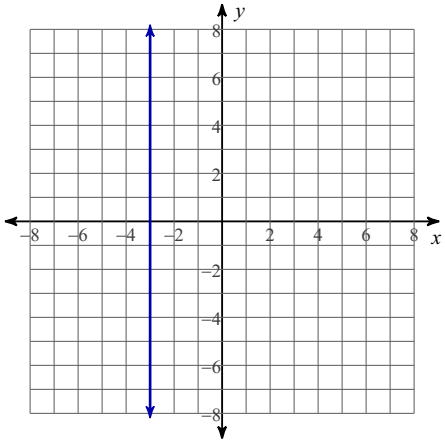
52) $y = \frac{7}{3}x - 6$

Find the slope of each line. Write the equation of the line.

53)



54)



Solve each system by elimination.

55) $2x - 2y = -30$
$12x + 6y = 0$

56) $8x + 7y = -26$
$-10x + y = -26$

57) Kim and Bill are selling pies for a school fundraiser. Customers can buy cherry pies and blackberry pies. Kim sold 11 cherry pies and 12 blackberry pies for a total of $300. Bill sold 5 cherry pies and 6 blackberry pies for a total of $144. Find the cost each of one cherry pie and one blackberry pie.

58) Willie's school is selling tickets to the annual talent show. On the first day of ticket sales the school sold 2 adult tickets and 8 child tickets for a total of $38. The school took in $31 on the second day by selling 1 adult ticket and 7 child tickets. Find the price of an adult ticket and the price of a child ticket.

Simplify. Your answer should contain only positive exponents.

59) $\left(2rp^3q^2\right)^3$

60) $\left(zx^3y^2\right)^2$

61) $\left(2mpn^2\right)^3$

62) $\left(4zx^4y^3\right)^3$

Write a function to represent the populations:

63) The population of fish in a pond was 746 and grew 8% each year. Write a function to represent the population of fish after t years.

64) The population of birds in a park was 74,000 and decreased 5% each year. Write a function to represent the population of birds after t years.

65) The population of termites in a forest was 43,000 and grew 14% each year. Write a function to represent the population of termites after t years.

Solve each equation.

66) $r - \frac{9}{5} = -\frac{67}{15} - 3r$

67) $\frac{59}{9} - 2p = \frac{4}{3}p + 1$

68) $-(7x + 1) - 2 = 4x - 7(x + 1)$

69) $2(1 - 4n) = 6 - 7(1 + n)$

Write the slope-intercept form of the equation of the line through the given points.

70) through: $(-5, 4)$ and $(-4, -2)$

71) through: $(5, 1)$ and $(2, -5)$

72) through: $(-4, 3)$ and $(-3, -1)$

73) through: $(-3, -1)$ and $(-2, 4)$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

74) through: $(-3, -5)$, slope $= \frac{1}{3}$

75) through: $(-4, 5)$, slope $= -\frac{5}{2}$

76) through: $(5, -4)$, slope $= -\frac{2}{5}$

77) through: $(4, -4)$, slope $= -\frac{3}{2}$

Solve each inequality, graph and write solutions in INTERVAL NOTATION.

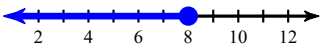
78) $3(n + 1) \leq 11 + 2n$

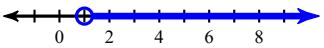
79) $-4x + 28 < 3(2x + 6)$

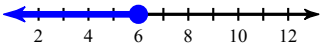
80) $6(-4 - n) \leq -8n - 12$

81) $5(a + 2) < -4a - 8$

Answers to Unit 8 Review

1) $2(5b-7)$
2) $4(p-1)$
3) $7(10x+1)$
4) $3(10a-9)$
5) $8u^5v^3(9v+8u+6)$
6) $7x^2(2y^3+5x+x^2y)$
7) $3x^3(2x^3y^5-x+1)$
8) $4xy(4x^3y+8y^2-3)$
9) $(5x^2-8)(7x+5)$
10) $(3m^2-5)(7m+1)$
11) $(p^2+7)(6p+7)$
12) $(7a^2+1)(4a+5)$
13) $(n+10)(n-1)$
14) $(a+10)(a-8)$
15) $(n-7)(n-5)$
16) $(n-1)(n+6)$
17) $(n-2)(n-7)$
18) $(x+10)(x-3)$
19) $(b-5)(b-4)$
20) $(v+8)(v-10)$
21) $(n+7)(n-1)$
22) $(k+4)(k-3)$
23) $(x+2)(x-6)$
24) $(b-3)(b-7)$
25) $(p-8)(p+3)$
26) $(r+7)(r+3)$
27) $(r+10)(r+5)$
28) $(r+7)(r+10)$
29) $(3k+7)(k-8)$
30) $(3x+7)(x-9)$
31) $(5n-7)(n-5)$
32) $(5x-1)(x-2)$
33) $(5a+3)(a-7)$
34) $(2n+7)(n-10)$
35) $(7a-6)(a+10)$
36) $(5m+4)(m+9)$
37) $(8a+1)(8a-1)$
38) $(9m+8)(9m-8)$
39) $(x+7)(x-7)$
40) $(7a+1)(7a-1)$
41) $(4k+1)(4k-1)$
42) $(10x+1)(10x-1)$
43) $(8n+9)(8n-9)$
44) $(9p+10)(9p-10)$
45) quartic monomial
46) quartic trinomial
47) linear binomial
48) cubic monomial
49) quadratic trinomial
50) quartic binomial
51) $11x-3y=-15$
52) $7x-3y=18$
53) m = 0, $y=5$
54) undefined, $x=-3$
55) $(-5, 10)$
56) $(2, -6)$
57) cherry pie: \$12, blackberry pie: \$14
58) adult ticket: \$3, child ticket: \$4
59) $8r^3p^9q^6$
60) $z^2x^6y^4$
61) $8m^3p^3n^6$
62) $64z^3x^{12}y^9$
63) $y=746\cdot 1.08^t$
64) $y=74000\cdot 0.95^t$
65) $y=43000\cdot 1.14^t$
66) $\left\{-\frac{2}{3}\right\}$
67) $\left\{\frac{5}{3}\right\}$
68) $\{1\}$
69) $\{3\}$
70) $y=-6x-26$
71) $y=2x-9$
72) $y=-4x-13$
73) $y=5x+14$
74) $y=\frac{1}{3}x-4$
75) $y=-\frac{5}{2}x-5$
76) $y=-\frac{2}{5}x-2$
77) $y=-\frac{3}{2}x+2$
78) $n\le 8$:


79) $x>1$:


80) $n\le 6$:


81) $a<-2$: