

ALGEBRA I HONORS SUMMER MATH PACKET

Name: _____

1. Simplify each expression.			
A. $w^9 \cdot w^3$	B. $x^{-5} \cdot x^7$	C. $7^8 \cdot 7^3 \cdot 7^{-2}$	D. $x^{-5} \cdot x^{-4} \cdot x$
E. $\frac{m^7}{m^4}$	F. $\frac{v^{-3}}{v}$	G. $\frac{3^6}{3^{-4}}$	H. $\frac{p^{-7}}{p^2}$
I. $(5^3)^7$	J. $(x^{-2})^6$	K. $(m^{-4})^{-10}$	L. $(19^9)^{-5}$
M. $\frac{m^6 \cdot m^4}{m^7}$	N. $\frac{x^3}{x^2 \cdot x^5}$	O. $\frac{c^5 \cdot c^{-1}}{c \cdot c^3}$	P. $\frac{v^8 \cdot v^{-2}}{v^4 \cdot v^3}$

2. Simplify the algebraic expressions.	
A. $7(m-3) + 4(m+5)$	B. $2m^2 - 5n^2 + 6n^2 - 8m$
C. $10(n^2 + n) - 6(n^2 - 2)$	D. $y^2 + 2y + 3y^2$

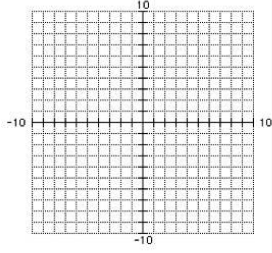
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3. Solve each equation.		
A. $6m - 3 = 21$	B. $3 = 2p + 5$	C. $1 = \frac{1}{3}a - 5$
D. $5b - 4 = 2b + 8$	E. $2c + 14 = 6 - 4c$	F. $3(x + 5) = 3x + 15$
G. $\frac{1}{2}x + 4 = \frac{-2}{3}x + \frac{1}{2}$	H. $-2(4 - 3x) + 7 = 6(x + 1)$	
I. $3(2x - 5) - x = -7(x + 3)$	J. $2(-x - 4) + 3 = -7x + 5 + 5x$	
4. Find the slope of the line that passes through the two points.		
A. (2,-4) (4,-1)	B. (-3,6) (-7,3)	C. (4,4) (4,9)

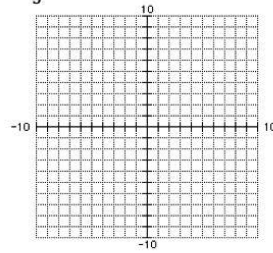
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5. Graph the equation.

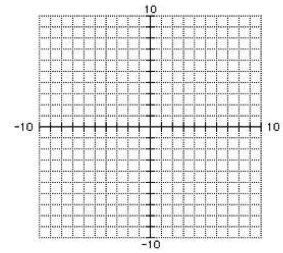
A. $y = -x + 2$



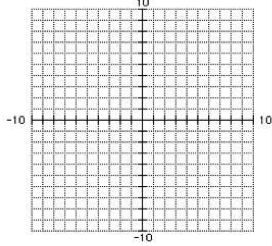
B. $y = \frac{2}{5}x + 4$



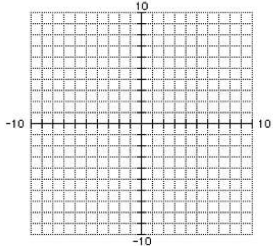
C. $y = 2$



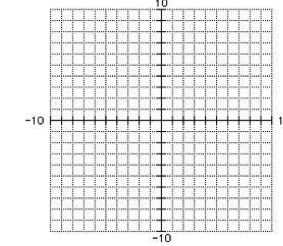
D. $5x + 2y = 10$



E. $3x - 2y = 12$

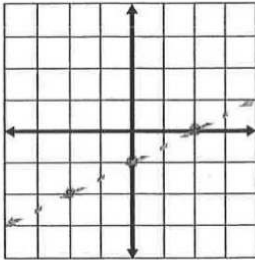


F. $x = -3$

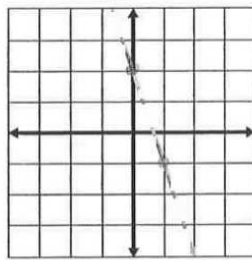


6. Write an equation in slope-intercept form to represent the line.

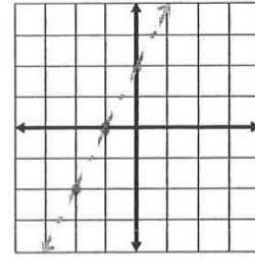
A.



B.



C.



7. Write the equation of a line in slope intercept form that passes through the two points.

A. $(-1,3)$ and $(2,9)$

B. $(4,-1)$ and $(6,-7)$

C. $(-5,-2)$ and $(-3,8)$

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8. Evaluate the following expressions given the functions below:

$$f(x) = x^2 + 7 \quad g(x) = -3x + 1 \quad h(x) = \frac{12}{x} \quad j(x) = 2x + 9$$

A. $g(10) =$

B. $f(3) =$

C. $h(-2) =$

D. $j(7) =$

E. Find x if $g(x) = 16$

F. Find x if $h(x) = -2$

G. Find x if $f(x) = 23$

H. Challenge: $g(b + c) =$

I. Challenge: $f(h(x)) =$

9. Translate the following into ordered pairs.

A. $f(-1) = 1$ (,)

B. $h(2) = 7$ (,)

C. $g(1) = -1$ (,)

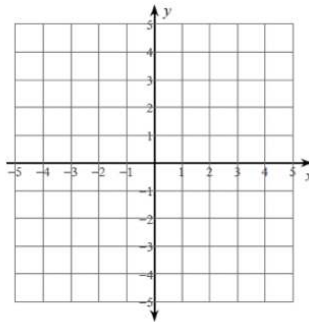
D. $f(3) = 5$ (,)

E. $h(-3) = 4$ (,)

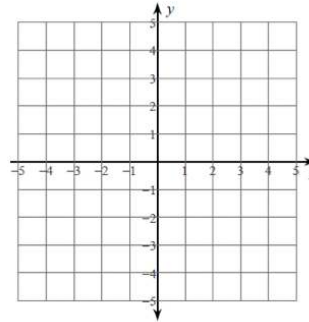
F. $k(4) = 8$ (,)

10. Solve the following systems by graphing.

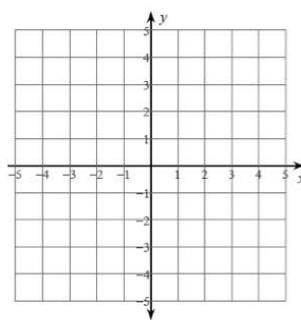
A. $y = \frac{1}{3}x - 3$
 $y = -x + 1$



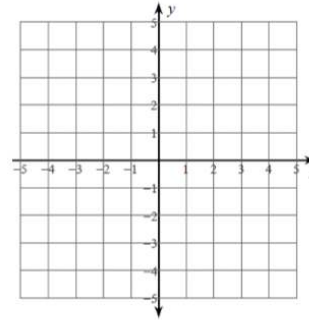
B. $y = \frac{5}{2}x + 4$
 $y = -1$



C. $y = -\frac{1}{2}x - 2$
 $y - 2 = -\frac{3}{2}x$

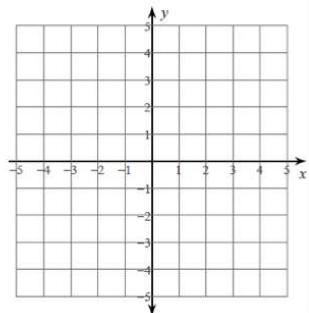


D. $y + \frac{1}{2}x = -1$
 $y = \frac{1}{4}x - 4$

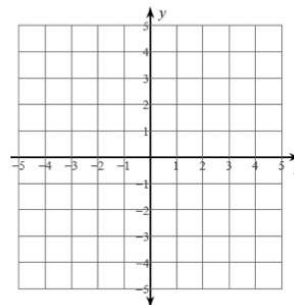


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E. $y - \frac{3}{4}x = 2$
 $y - 2 = \frac{3}{4}x$



F. $y + 4 = 3x$
 $y - 3 = -\frac{1}{2}x$



11. Solve the following systems using elimination.

A. $-4x - 2y = -12$
 $4x + 8y = -24$

B. $x - y = 11$
 $2x + y = 19$

C. $x + 3y = -6$
 $5x - 6y = -23$

D. $4x + 4y = 0$
 $-x - 2y = 4$

E. $-7x + y = -19$
 $-2x + 3y = -19$

F. $-3x + 7y = -16$
 $-9x + 5y = 16$

12. Solve the following systems using substitution.

A. $x + 4y = 0$
 $-5x + 2y = 22$

B. $3x + y = -3$
 $-3x - y = 4$

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<p>C.</p> $y = -2x + 1$ $y = x + 4$	<p>D.</p> $-x - 7y = -3$ $3x + 21y = -4$
<p>E.</p> $x + 4y = 9$ $-5x + 7y = -18$	<p>F.</p> $4x - 4y = 4$ $6x - 5y = -2$
<p>13. Write and solve a system of equations for each situation. Use any method to solve the systems.</p>	
<p>A. Your school sold 456 tickets for the high school play. An adult ticket costs \$3.50 and a student costs \$1.00. The total ticket sales was \$1131. How many adult tickets and how many student tickets did they sell? Set up a system to solve.</p>	
<p>B. A landscaping company placed two orders with a nursery. The first order was for 13 bushes and 4 trees, and totaled \$487. The second order was for 6 bushes and 2 trees, and totaled \$232. The bill does not list the per-item price. What is the cost of one bush and of one tree?</p>	

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C. The treasurer of the student body at a college reported that the receipts from a recent concert totaled \$916. Furthermore, he announced that 560 people had attended the concert. Students were charged \$1.25 each for admission to the concert, and adults were charged \$2.25 each. How many adults attended the concert?

14. Solve each proportion.

A. $\frac{2}{3} = \frac{6}{x-4}$

B. $\frac{3}{10} = \frac{m+7}{20}$

C. $\frac{x-1}{3} = \frac{x+1}{5}$

D. $\frac{w}{3} = \frac{w+4}{7}$

E. $\frac{5}{2n} = \frac{8}{3n-24}$

F. $\frac{5x-3}{-2} = \frac{x+3}{2}$