C. Shore
ALGEBRA 1

Name _____

Concepts & Procedures 1 = ___ ___ = Critical Thinking
Concepts & Procedures 2 = ___ ___ = Creativity
Concepts & Procedures 3 = ___ ___ = Communicate Reasoning
Constructing Models = ___ ___ = Collaboration

Quiz #8A
Polynomials

CONCEPTS & PROCEDURES 1

1. For the following polynomial: $\mathbf{3x^2 - 5 + 2x^3 - 6x^4}$

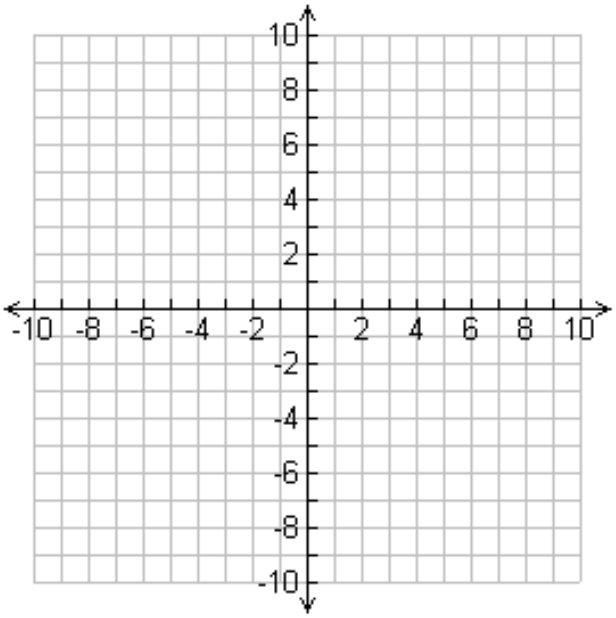
   a) Write it in standard form (descending order): _____

   b) What is the degree of the polynomial? ____

2. a) Write the equation of the line passing through the points (2, 3) & (5, 9).

   y = _____

   b) Graph your equation and show that it passes through the two points.



CONCEPTS & PROCEDURES 2

3-5) Factor

3. $x^2 + 7x + 12$

4. $5x^2 + 15x - 10$

5. $x^2 - 25$

CONCEPTS & PROCEDURES 3

6-9) Simplify by addition, subtraction or multiplication.

6. $5x(x + 9) + 7(x - 8)$

7. $(x + 6)(x + 7)$

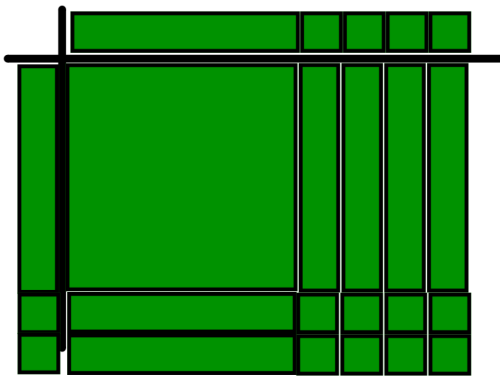
8. $3x(2x^3 - 7x^6)$

9. $(3x + 4)(3x - 4)$

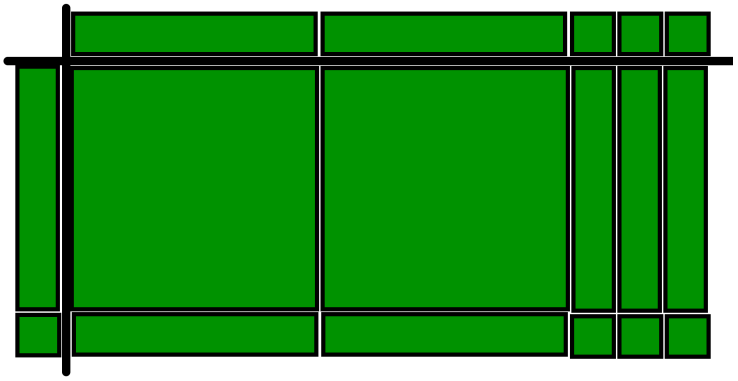
CONSTRUCTING MODELS

10. Write the polynomial in standard form and factored form that is represented by the Algebra Tile model.

a. _____= _____



b. _____= _____



11. Write an equation to represent the given scenario.

a) Sandra has a car that is worth $15,000 and depreciates 12% a year:

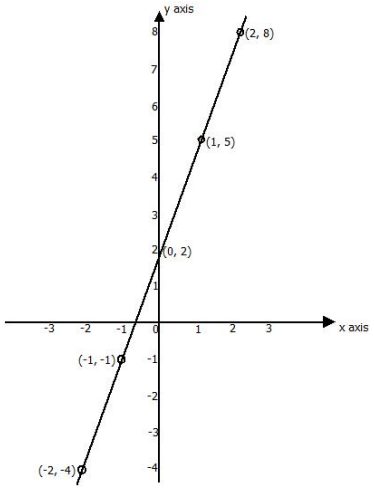
C(t) = _____

b) Bebe earns $28,000 a year with a $2,500 raise each year.

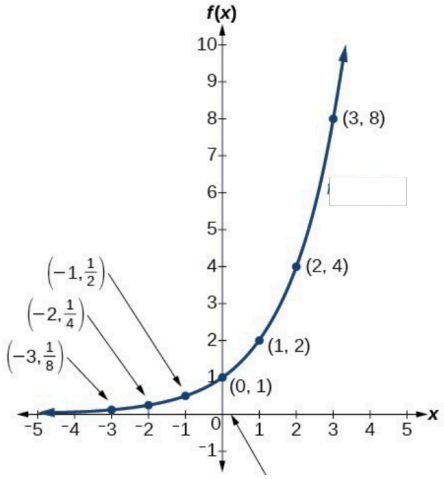
S(n) = _____

12. For each of the following graphs of f(x), find f(5).

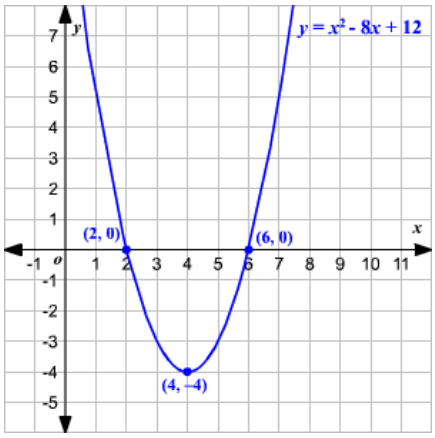
a. f(5) = _____



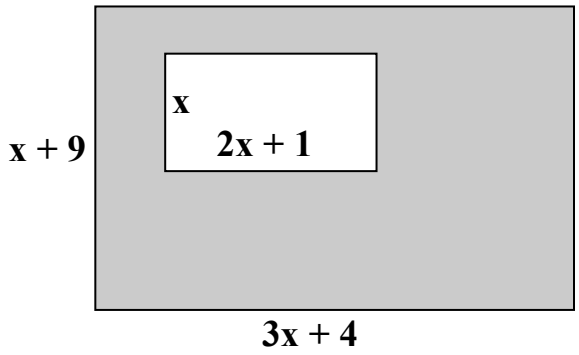
b. f(5) = _____



c. f(5) = _____



13. For the given figure…



a) What is the perimeter in terms of x? P(x) = _____.

b) What is the perimeter when x = 10? P(10) = _____.

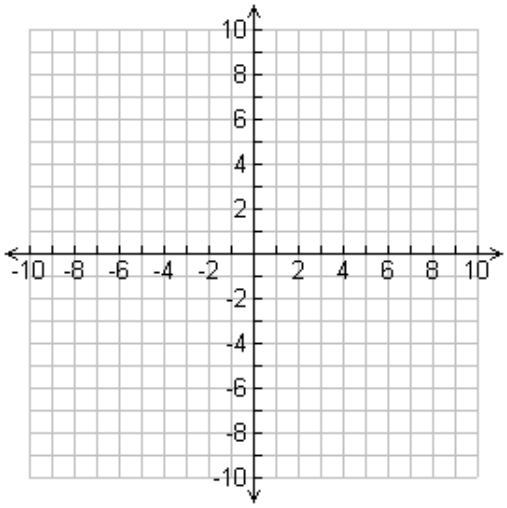
c) What is the area in terms of x? A(x) = _____.

d) What is the area when x = 10? P(10) = _____.

CRITICAL THINKING

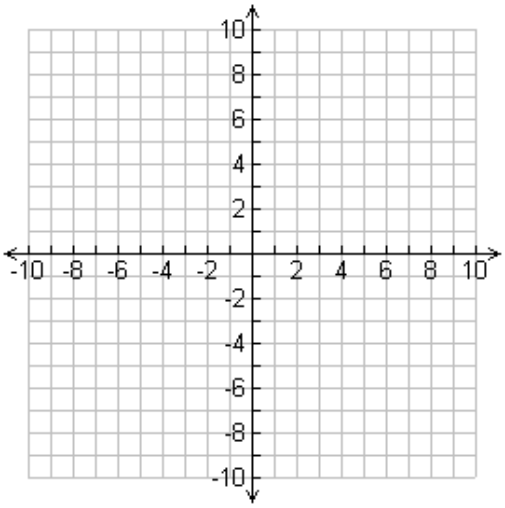
14. Graph the function below showing at least 3 points and state asymptote, domain and range.

$$y = 2^x + 1$$



15. For the given system: $\begin{cases} x + 2y = 4 \\ 3x + 6y = 24 \end{cases}$

a. Solve the system algebraically.



b. Graph the system to confirm your solution.

CREATIVITY

16. Create an example of an equation that represents a decay function. _____

COMMUNICATE REASONING

17. Duffy is having another mathemtical argument with his brother Duffus and cousin Dweeb over the simplifying of: ***5x(x)****. Each of their simplified expressions is shown.* Who is correct and why?

Duffy: $5x(x) = 6x$
Duffus: $5x(x) = 5x^2$
Dweeb: $5x(x) = 6x^2$

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Quiz #8B
Polynomials

CONCEPTS & PROCEDURES 1

18. For each function, h(t), find h(-2).

a. $h(t) = -t - 8$ b. $h(t) = 16(2)^t$ c. $h(t) = -16t^2 + 100t + 20$

19. Simplify: a. $5x^3(3x^7) =$ _____ b. $63(10201)^0 + 81(9)^{-2} =$ _____

CONCEPTS & PROCEDURES 2

20-23) Simplify by addition, subtraction or multiplication.

20. $(x^2 + 2 - 4x^3) - (5x^3 - 6x + 10x^2)$ 21. $(2x + 3)^2$

22. $(x + 10)(x - 3)$ 23. $x(x - 4) - 5(x^2 - 6x + 7)$

CONCEPTS & PROCEDURES 3

24-26) Factor

24. $2x^2 + x - 15$ 25. $x^2 - 8x + 15$ 26. $x^2 + 7x - 18$

CONSTRUCTING MODELS

27. The following equation represents the number of people that know a specific joke, *P*, after a number of days, *d*.

$$P(d) = 5(3)^d$$

a) Explain the meaning, in context, of the value of …

5: _____ 3: _____

b) How many people know the joke after 4 days? _____

28. Match each data table to one of the equations offered:

$y = 5x + 15$ **$y = 10x$** **$y = 5(2)^x$** **$y = 5(3)^x$** **$y = 10x + 5$**

a.

x	0	1	2	3	4
y	5	15	25	35	45

y = _____

b.

x	0	1	2	3	4
y	5	10	20	40	80

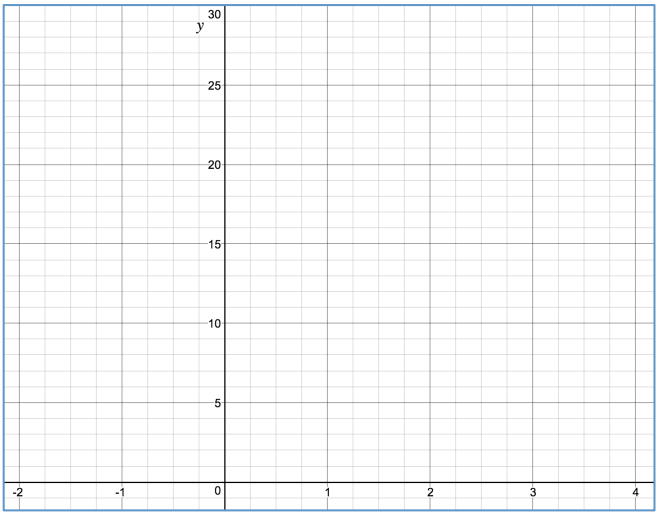
y = _____

29. Graph the two functions below and state their intersection. (,)

$L(x) = -\frac{1}{2}x + 13$

$E(x) = 3(2)^x$

(note the scale of the x-axis) →

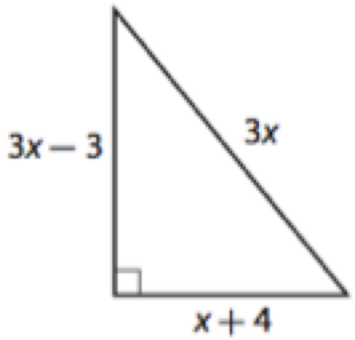


30. The length of a rectangle is four units more than its height. Write a function relating the area of the rectangle to its height.

A(h) = _____

CRITICAL THINKING

31. Find the area of the triangle to the right, given that it has a perimeter of 36.



CREATIVITY

32. Create a system of equations for which the solution is (3, 2). Show that (3, 2) is indeed the solution to your system.

COMMUNICATE REASONING

33. *There is a scary rumor that Morgan is a vampire. For the sake of her reputation, we need to prove that this is not true. Assume for momement that Morgan IS the only blood sucking vampire at Chaparral High School, but tonight she bites the neck of Mack and converts him to the undead. On the second night, they each bite someone so that there are now four vampires. On the third night, the vampires each bite someone, making a total of eight vampires. If a vampire cannot find a live person on which to feed, they vanish into dust. Why would having only 3200 people at Chaparral prove that there are no vampires at Chap, and thus you do not have to fear Morgan?*

(Inspired by *Mathathicous'* Epidemic lesson and Morgan's fashion on dress days)