20A

Build.

1. $X^2 + 11X + 2$

2. $X^2 + 6X + 8$

3. $X^2 - 8$

Build and add.

4. $X^2 - 6X + 3$
   $+ 3X^2 + 7X - 9$

5. $X^2 - 8$
   $+ X^2 + 6X - 7$

6. $2X^2 + 10X + 7$
   $+ 2X^2 - 8X - 9$

Build a rectangle and find the area (product).

7. $(X + 1)(X + 2) =$

8. $(X + 4)(X + 3) =$

9. $(X + 1)(X + 5) =$

Multiply.

10. $(3X + 2)(X + 1)$

11. $(5X + 5)(X + 2)$

12. $(2X + 1)(X + 5)$

13. $(X + 8)(3X + 5)$

14. $(X + 3)(2X + 1)$

15. $(3X + 2)(2X + 1)$

16. $(4X + 2)(X + 3)$

17. $(2X - 5)(X + 2)$

18. $(3X + 5)(3X - 1)$

Build.

1. $X^2 - 3X - 7$

2. $2X^2 - 7X - 3$

3. $X^2 + 5X + 9$

Build and add.

4. $X^2 + 3X + 2$
$+ X^2 + 7X + 12$

5. $X^2 + 6X + 5$
$+ 3X^2 - X - 2$

6. $5X^2 - 5X - 10$
$+ 2X^2 + 11X + 5$

Build a rectangle and find the area (product).

7. $(X + 4)(X + 5) =$

8. $(X + 7)(X + 3) =$

9. $(X + 4)(X + 8) =$

Multiply.

10. $(7x + 1)(x + 2)$

11. $(3x + 7)(x + 6)$

12. $(2x + 8)(3x + 1)$

13. $(x + 8)(x - 3)$

14. $(2x - 1)(x + 9)$

15. $(3x + 5)(x + 2)$

16. $(4x - 2)(x - 3)$

17. $(5x + 2)(3x - 3)$

18. $(3x + 7)(4x + 2)$

Build and add.

1. $3X^2 + 7X + 6$
   $+ \ X^2 + 2X + 3$

2. $2X^2 + 5X + 1$
   $+ \quad X^2 + 3X + 4$

3. $4X^2 + 8X + 2$
   $+ \ -X^2 + 3X - 1$

Build a rectangle and find the area (product).

4. $(X + 4)(X + 8) =$

5. $(X + 5)(X + 2) =$

6. $(X + 2)(X + 6) =$

Multiply.

7. $3X + 6$
   $\times \ X + 2$

8. $2X + 5$
   $\times \ X + 3$

9. $4X - 5$
   $\times \ X + 1$

10. Write on one line: $\frac{1}{X^{-4}}$

11. Rewrite using positive exponents: X^{-3}

Simplify. Write expressions with exponents on one line.

12. $5^2 \times 3^0 \times 5^{-4} =$

13. $A^4 \div A^7 =$

14. $(5^2)^5 =$

15. $(5)^{12} = (5^3)^{?} =$

16. $\sqrt{196}$ =

17. $C^{-5} \times C^{2}$ =

18. The base of a rectangle is X + 4, and the height is X + 5. What is the area of the rectangle? (Remember that the area of a rectangle is base times the height.)

19. Find the area of the rectangle in #18 if X equals six.

20. Take two times the base and height of the rectangle in #18, using the distributive property, and then find the polynomial that expresses the new area.

Build and add.

1. $X^2 - 3X - 7$
$+ 2X^2 + 4X - 4$

2. $X^2 + 11X + 2$
$+ 3X^2 - 4X + 6$

3. $X^2 - 10X - 5$
$+ -2X^2 - X + 14$

Build a rectangle and find the area (product).

4. $(X + 2)(X + 7) =$

5. $(2X + 3)(X + 4) =$

6. $(X + 1)(X + 9) =$

Multiply.

7. $2X + 4$
$\times \quad X + 3$

8. $3X - 1$
$\times \quad X + 4$

9. $2X - 3$
$\times \quad X - 4$

10. Write on one line: $\frac{1}{X^4}$

11. Rewrite using positive exponents: $\frac{1}{Y^{-5}}$

Simplify. Write expressions with exponents on one line.

12. $3^7 \times 4^3 \times 4^{-2} =$

13. $B^5 \div B^1 =$

14. $(8^3)^6 =$

15. $(2)^{15} = (2^3)^? =$

16. $\sqrt{225} =$

17. $D^{-3} \times D^8 \times D^{-7} =$

18. The base of a rectangle is 2X + 4, and the height is X + 4. What is the area of the rectangle?

19. Find the area of the rectangle in #18 if X equals 10.

20. The area of a second rectangle is $X^2 + 3X + 1$. What is the sum of the area of the two rectangles (from #18 and #20)?

Build and add.

1. $X^2 + 3X - 2$
$+ \; X^2 + 4X + 3$

2. $3X^2 + 2X - 1$
$+ \; 2X^2 - 2X + 8$

3. $5X^2 + 4X + 7$
$+ \; -X^2 + 3X + 7$

Build a rectangle and find the area (product).

4. $(X + 3)(X + 3) =$

5. $(2X + 4)(X + 2) =$

6. $(3X)(X + 2) =$

Multiply.

7. $2X - 3$
$\times \; X - 2$

8. $X - 1$
$\times \; X - 6$

9. $2X + 2$
$\times \; X - 3$

10. Write on one line: $\frac{1}{X^5}$

11. Rewrite using positive exponents: Y^{-2}

Simplify. Write expressions with exponents on one line.

12. $7^{-2} \times 7^5 \div 7^{-2} =$

13. $A^7 \div B^3 =$

Simplify. Write expressions with exponents on one line.

14. $(5^2)^5 =$

15. $(5)^{12} = (5^3)^? =$

16. $-\sqrt{169} =$

17. $C^0 C^{-4} D^8 D^{-7} D^{-3} C^3 =$

18. Stephanie's savings are represented by 3N + 4, and Chuck's are represented by 2N + 5. Write an expression representing their combined savings.

19. Stephanie and Chuck have each been saving as described in #18 for 10 weeks (N), what is the total amount they have saved?

20. The base of a rectangle is 2Y + 7, and the height is 7Y + 5. What is the area of the rectangle?

Here are some more problems involving exponents.

Follow the directions and answer the questions.

1. Suppose that m represents the mass in grams of a substance that halves in size each month. You can find the value for each month simply by dividing the value for the previous value by two.

x (number of months)	0	1	2	3	4	
m (mass in grams)	200					

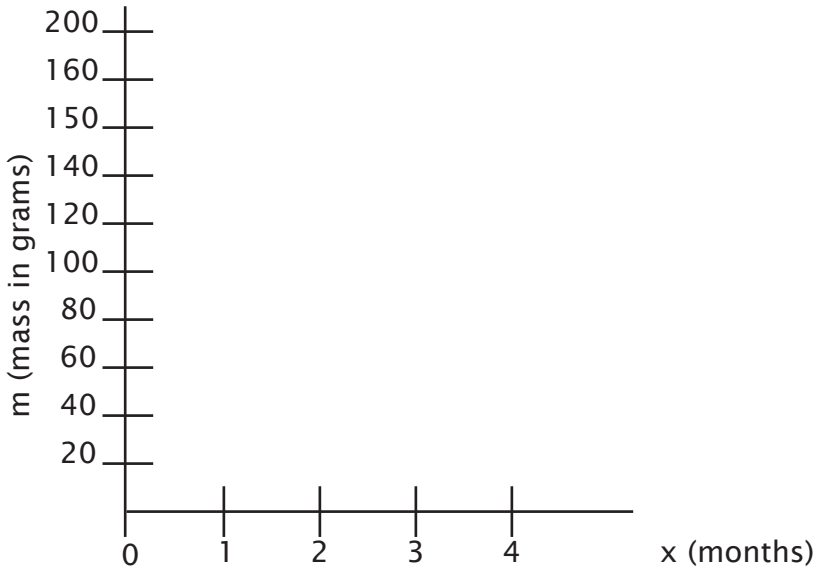
2. What was the mass of the substance when measuring began? (time = 0)

3. How long will it be until there are 100 grams remaining?

4. How long will it be until there are only 50 grams remaining?

5. What is the mass of the substance after four months?

6. Make a graph showing the first five months of decrease of the substance described on the previous page.



In real life, a scientist may wish to find the value of m for a certain number of months without finding every value in between. In this case, $m = 200(.5)^x$, where x stands for the number of months. Compare the example to the corresponding value on your chart.

Example $m = 200(.5)^x$. Find the value of m after four months.
$m = 200(.5)^4$ $m = 200(.0625) = 12.5$ grams

7. Use the equation given above to find the mass of the substance after six months.

1. $X^2 + 2X + 2$ is a:

I. polynomial II. trinomial
III. binomial IV. monomial

A. I and II
B. I and IV
C. I only
D. II only
E. III only

2. $X^2 + 3X + 2$
$+ X^2 + 4X + 5$

A. $X^2 + 7X + 7$
B. $2X^2 + 7X + 3$
C. $9X + 7$
D. $2X^2 + 7X + 7$
E. $2X^2 - X + 7$

3. $X^2 + X + 10$
$+ X^2 - 2X + 4$

A. $2X^2 - X + 14$
B. $X^2 - X + 14$
C. $-X + 6$
D. $2X^2 - 3X - 6$
E. $2X^2 + X + 14$

4. $X^2 + 8X + 6$
$+ X^2 - 3X - 1$

A. $X^2 + 5X + 5$
B. $2X^2 - 5X - 5$
C. $-11X + 7$
D. $2X^2 + 11X + 7$
E. $2X^2 + 5X + 5$

5. $X^2 - 5X - 2$
$+ X^2 - 4X - 3$

A. $X^2 + 9X + 5$
B. $9X + 5$
C. $2X^2 - X - 1$
D. $X^2 - 9X - 5$
E. $2X^2 - 9X - 5$

6. What is the sum of $2X + 3$ and $4X - 5$?

A. $6X^2 - 2$
B. $6X + 2$
C. $6X - 2$
D. $6X + 8$
E. $2X + 2$

7. What is the sum of $2X^2 - 9X + 5$ and $X^2 + 4X - 1$?

A. $3X^2 + 5X + 4$
B. $3X^2 - 5X + 4$
C. $X^2 - 5X + 4$
D. $3X^2 + 13X + 4$
E. $3X^2 - 5X + 6$

8. $4X + 3$
$\times X + 1$

A. $5X^2 + 5X + 4$
B. $11X + 3$
C. $4X^2 + 7X + 3$
D. $4X^2 + 7X + 4$
E. $4X^2 + X + 3$

9. $X + 3$
$\times\ X + 2$

A. $X^2 + 6X + 5$
B. $X^2 + 5X + 6$
C. $2X^2 + 5X + 6$
D. $X^2 + X + 5$
E. $X^2 + X + 6$

10. The product of $X + 4$ and $X - 2$ is:
A. $X^2 + 2X - 8$
B. $X^2 - 2X - 8$
C. $2X^2 + 6X - 8$
D. $X^2 - 6X - 8$
E. $X^2 - 2X + 8$

11. Multiply $X + 1$ and $X + 5$.
A. $X^2 + 5X + 6$
B. $X^2 + 6X - 5$
C. $X^2 + 6X + 5$
D. $X^2 + 5X + 4$
E. $2X^2 + 6X + 5$

12. Multiply $X - 3$ and $X - 6$.
A. $X^2 + 9X - 18$
B. $X^2 + 9X + 18$
C. $2X^2 - 9X + 18$
D. $X^2 - 9X + 18$
E. $X^2 - 18X - 9$

13. If $7X + 1$ and $X + 2$ are multiplied, the first term of the answer would be:
A. X^2
B. $7X^2$
C. $14X^2$
D. $2X^2$
E. $7X$

14. If $2X + 4$ and $X + 5$ are multiplied, the first term of the answer would be:
A. $3X^2$
B. $2X^2$
C. $10X^2$
D. $8X^2$
E. $20X^2$

15. When we multiply 2 binomials, the result is a(n):
A. binomial
B. trinomial
C. monomial
D. integer
E. inequality