

11-14-18

Aim: SWBAT review.

HW: Test Tomorrow

Do Now: Correct hw

HOMEWORK - FACTORING TRINOMIALS

Factor each of the following trinomials.

1) $x^2 + 12x + 32$

Same Signs
both positive

mult. to 32, add to 12

1, 32

2, 16

★ 4, 8

$(x + 4)(x + 8)$

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

Different Signs -- Bigger negative

mult. to -30, add to -7

1, -30

2, -15

★ 3, -10

5, -6

$(x + 3)(x - 10)$

3) $x^2 + 8x - 9$

Different Signs
Bigger positive

mult. to -9, add to 8

★ -1, 9

-3, 3

$(x - 1)(x + 9)$

4) $x^2 + 14x + 40$

Same Signs
both positive

mult. to 40, add to 14

1, 40

2, 20

★ 4, 10

$(x + 4)(x + 10)$

5) $x^2 + 5x - 24$

Different Signs -- Bigger positive

mult. to -24, add to 5

-1, 24

-2, 12

★ -3, 8

-4, 6

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

6) $x^2 - 9x + 20$

Same Signs
both negative

mult. to 20, add to -9

-1, -20

-2, -10

★ -4, -5

$(x - 4)(x - 5)$

7) $x^2 + 16x + 15$

Same Signs
both positive

mult. to 15, add to 16

★ 1, 15

3, 5

$(x + 1)(x + 15)$

8) $x^2 - 9x + 14$

Same Signs
both negative

mult. to 14, add to -9

-1, -14

★ -2, -7

$(x - 2)(x - 7)$

9) $x^2 - 11x + 24$

Same Signs -- both negative

mult. to 24, add to -11

-1, -24

-2, -12

★ -3, -8

-4, -6

$(x - 3)(x - 8)$

10) $x^2 + 7x + 12$

Same Signs
both positive

mult. to 12, add to 7

1, 12

2, 6

★ 3, 4

$(x + 3)(x + 4)$

11) $x^2 + 5x - 14$

Different Signs
Bigger positive

mult. to -14, add to 5

-1, 14

★ -2, 7

$(x - 2)(x + 7)$

12) $x^2 - 10x + 21$

Same Signs
both negative

mult. to 21, add to -10

-1, -21

★ -3, -7

$(x - 3)(x - 7)$

both positive
signs are the same

$$ax^2 + bx + c$$

both negative
signs are the same

$$ax^2 - bx + c$$

greater #
is positive
signs are different

$$ax^2 + bx - c$$

greater #
is negative
signs are different

$$ax^2 - bx - c$$

Review Polynomials

State the degree for each polynomial.

1) $5y^2 + 7xy^3$ _____

2) $7x^3y + 5x^2 + 3$ _____

3) $5x^2 + 2x + 1$ _____

Write each polynomial in STANDARD FORM.

4) $6x + 2x^2$

5) $-7 + 5y^5 + 8y^7 + 9y$

6) $3 + 7x + 2x^2$

Identify each polynomial as a monomial, binomial, trinomial or polynomial.

7) $5m^2n$ _____

8) $2x + 1$ _____

9) $-5 + 2x^4 + 3x$ _____

10) $4x^4 + x^3 + x^2 + x$ _____

Simplify.

11) $3(x^2 + 9) - 5x - 7$

12) $(-3x)(6x + 4) + 2x - 9$

13) $-5(x^2 + 7x - 3) + x^2 + 5x - 2$

Add or Subtract.

14) $(5x^2 + 2x + 3) + (3x^2 + x + 4)$

15) $(14x^2 + 5x + 9) - (3x^2 + 3x + 3)$

16) $(3x^2 - 2x - 3) - (5x^2 - 2x + 3)$

17) $(-7x^2 + 5x - 2) + (-2x^2 + 4x - 3)$

18) $(3x^2 - 5x - 4) + (4x^2 - 6x + 2)$

19) $(-5x^2 - 2x - 4) - (-2x^2 - 5x + 7)$

20) $(-8x^2 - 4x) - (10x^2 + 2x)$

21) $(-4x^2 + 6x - 7) + (-2x^2 - 9x - 3)$

Review Polynomials

State the degree for each polynomial.

1) $5y^2 + 7xy^3$ 4

2) $7x^3y^1 + 5x^2 + 3$ 4

3) $5x^2 + 2x^1 + 1$ 2

Write each polynomial in STANDARD FORM.

4) $6x + 2x^2$

$2x^2 + 6x$

5) $-7 + 5y^5 + 8y^7 + 9y$

$8y^7 + 5y^5 + 9y - 7$

6) $3 + 7x + 2x^2$

$2x^2 + 7x + 3$

Identify each polynomial as a monomial, binomial, trinomial or polynomial.

7) $5m^2n$ monomial

8) $2x + 1$ binomial

9) $-5 + 2x^4 + 3x$ trinomial

10) $4x^4 + x^3 + x^2 + x$ polynomial

Simplify.

11) $3(x^2 + 9) - 5x - 7$
 $3x^2 + 27 - 5x - 7$
 $3x^2 - 5x + 20$

12) $(-3x)(6x + 4) + 2x - 9$
 $-18x^2 - 12x + 2x - 9$
 $-18x^2 - 10x - 9$

13) $-5(x^2 + 7x - 3) + x^2 + 5x - 2$
 $-5x^2 - 35x + 15 + x^2 + 5x - 2$
 $-4x^2 - 30x + 13$

Add or Subtract.

14) $(5x^2 + 2x + 3) + (3x^2 + x + 4)$
 $5x^2 + 2x + 3 + 3x^2 + x + 4$
 $8x^2 + 3x + 7$

15) $(14x^2 + 5x + 9) - (3x^2 + 3x + 3)$
 $14x^2 + 5x + 9 - 3x^2 - 3x - 3$
 $11x^2 + 2x + 6$

16) $(3x^2 - 2x - 3) - (5x^2 - 2x + 3)$
 $3x^2 - 2x - 3 - 5x^2 + 2x - 3$
 $-2x^2 - 6$

17) $(-7x^2 + 5x - 2) + (-2x^2 + 4x - 3)$
 $-7x^2 + 5x - 2 - 2x^2 + 4x - 3$
 $-9x^2 + 9x - 5$

18) $(3x^2 - 5x - 4) + (4x^2 - 6x + 2)$
 $3x^2 - 5x - 4 + 4x^2 - 6x + 2$
 $7x^2 - 11x - 2$

19) $(-5x^2 - 2x - 4) - (-2x^2 - 5x + 7)$
 $-5x^2 - 2x - 4 + 2x^2 + 5x - 7$
 $-3x^2 + 3x - 11$

20) $(-8x^2 - 4x) - (10x^2 + 2x)$
 $-8x^2 - 4x - 10x^2 - 2x$
 $-18x^2 - 6x$

21) $(-4x^2 + 6x - 7) + (-2x^2 - 9x - 3)$
 $-4x^2 + 6x - 7 - 2x^2 - 9x - 3$
 $-6x^2 - 3x - 10$

Multiply or Divide.

22) $x^2(2x^3 - 5)$

23) $-2x(7x - 9)$

24) $3y(y^7 - 10y)$

25) $(x^5y^3)^4$

26) $(2x^3y^7)^4$

27) $(-3x^4y)^3$

28) $\frac{18x^4y^5}{3xy}$

29) $\frac{27x^3y^7}{9x^2y^4}$

30) $\frac{14x^5 + 21x^3 - 7x^2}{7x^2}$

31) $(m + 6)(m - 5)$

32) $(x - 3)(x - 10)$

33) $(x + 8)(x + 10)$

34) $(x - 6)(x - 20)$

35) $(x - 7)(x - 2)$

36) $(x + 10)(x - 10)$

37) $(2x - 1)(3x + 6)$

38) $(5x - 10)(4x - 3)$

39) $(x + 9)^2$

40) $(x - 5)^2$

41) $(x + 3)(x^2 + 4x + 2)$

42) $(x - 5)(x^2 - 4x + 9)$

Multiply or Divide.

$$22) x^2(2x^3 - 5)$$

$$2x^5 - 5x^2$$

$$23) -2x(7x - 9)$$

$$-14x^2 + 18x$$

$$24) 3y(y^7 - 10y)$$

$$3y^8 - 30y^2$$

$$25) (x^5y^3)^4$$

$$x^{20}y^{12}$$

$$26) (2x^3y^7)^4$$

$$16x^{12}y^{28}$$

$$27) (-3x^4y)^3$$

$$-27x^{12}y^3$$

$$28) \frac{18x^4y^5}{3xy}$$

$$6x^3y^4$$

$$29) \frac{27x^3y^7}{9x^2y^4}$$

$$3xy^3$$

$$30) \frac{14x^5 + 21x^3 - 7x^2}{7x^2}$$

$$2x^3 + 3x - 1$$

$$31) (m + 6)(m - 5)$$

$$m^2 - 5m + 6m - 30$$

$$m^2 + m - 30$$

$$32) (x - 3)(x - 10)$$

$$x^2 - 10x - 3x + 30$$

$$x^2 - 13x + 30$$

$$33) (x + 8)(x + 10)$$

$$x^2 + 10x + 8x + 80$$

$$x^2 + 18x + 80$$

$$34) (x - 6)(x - 20)$$

$$x^2 - 20x - 6x + 120$$

$$x^2 - 26x + 120$$

$$35) (x - 7)(x - 2)$$

$$x^2 - 2x - 7x + 14$$

$$x^2 - 9x + 14$$

$$36) (x + 10)(x - 10)$$

$$x^2 - 10x + 10x - 100$$

$$x^2 - 100$$

$$37) (2x - 1)(3x + 6)$$

$$6x^2 + 12x - 3x - 6$$

$$6x^2 + 9x - 6$$

$$38) (5x - 10)(4x - 3)$$

$$20x^2 - 15x - 40x + 30$$

$$20x^2 - 55x + 30$$

$$39) (x + 9)^2 (x + 9) (x + 9)$$

$$x^2 + 9x + 9x + 81$$

$$x^2 + 18x + 81$$

$$40) (x - 5)^2$$

$$(x - 5)(x - 5)$$

$$x^2 - 5x - 5x + 25$$

$$x^2 - 10x + 25$$

$$41) (x + 3)(x^2 + 4x + 2)$$

$$x^3 + 4x^2 + 2x + 3x^2 + 12x + 6$$

$$x^3 + 7x^2 + 14x + 6$$

$$42) (x - 5)(x^2 - 4x + 9)$$

$$x^3 - 4x^2 + 9x - 5x^2 + 20x - 45$$

$$x^3 - 9x^2 + 29x - 45$$

Factor each of the following.

43) $6x^3 + 2x^4$

44) $15x^2 - 24x^7$

45) $4x^2 + 12x^6 + 36x^8$

46) $6x^2y^5 + 15x^3y^4$

47) $x^2 - 10x - 24$

48) $x^2 + 14x + 49$

49) $x^2 - 11x + 30$

50) $x^2 + 5x - 24$

51) $x^2 + 10x + 25$

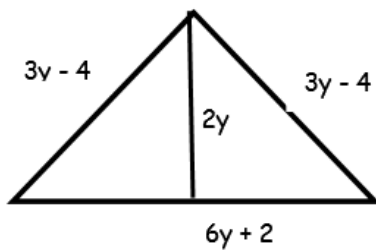
52) $x^2 - 2x - 15$

53) $x^2 + 4x - 12$

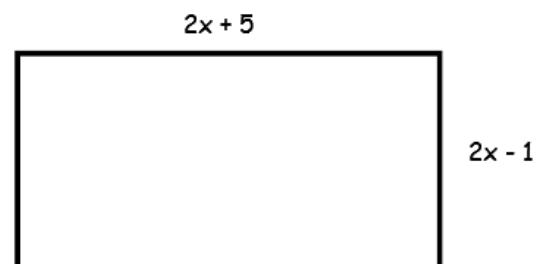
54) $x^2 - 6x + 9$

Find the PERIMETER AND AREA of each of the following figures.

55)



56)



57) Find the perimeter and area of a rectangular garden that measures $(3x)$ ft by $(2x^2 + 5)$ ft.

Factor each of the following.

43) $6x^3 + 2x^4$
 $\frac{6x^3 + 2x^4}{2x^3} = 2x^3(3 + x)$

46) $6x^2y^5 + 15x^3y^4$
 $\frac{6x^2y^5 + 15x^3y^4}{3x^2y^4} = 3x^2y^4(2y + 5x)$

49) $x^2 - 11x + 30$ Same Signs both negative
 mult. to 30 -1, -30
 add to -11 -2, -15
 -3, -10
 -5, -6★
 $(x-5)(x-6)$

52) $x^2 - 2x - 15$ Different Signs bigger negative
 mult. to -15 11, -15
 add to -2 3, -5★
 $(x-5)(x+3)$

44) $15x^2 - 24x^7$
 $\frac{15x^2 - 24x^7}{3x^2} = 3x^2(5 - 8x^5)$

47) $x^2 - 10x - 24$ Different Signs bigger negative
 mult. to -24 1, -24
 add to -10 2, -12★
 3, -8
 4, -6
 $(x-12)(x+2)$

50) $x^2 + 5x - 24$ Different Signs bigger positive
 mult. to -24 -1, 24
 add to 5 -2, 12
 -3, 8★
 -4, 6
 $(x-3)(x+8)$

53) $x^2 + 4x - 12$ Different Signs bigger positive
 mult. to -12 -1, 12
 add to 4 -2, 6★
 -3, 4
 $(x-2)(x+6)$

$4x^2(1 + 3x^4 + 9x^6)$

45) $4x^2 + 12x^6 + 36x^8$
 $\frac{4x^2 + 12x^6 + 36x^8}{4x^2} = 1 + 3x^4 + 9x^6$

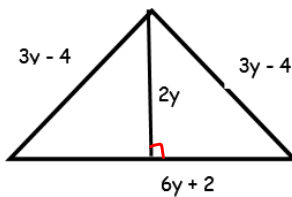
48) $x^2 + 14x + 49$ Same Signs both positive
 mult. to 49 1, 49
 add to 14 7, 7★
 $(x+7)(x+7)$

51) $x^2 + 10x + 25$ Same Signs both positive
 mult. to 25 1, 25
 add to 10 5, 5★
 $(x+5)(x+5)$

54) $x^2 - 6x + 9$ Same Signs both negative
 mult. to 9 -1, -9
 add to -6 -3, -3★
 $(x-3)(x-3)$

Find the PERIMETER AND AREA of each of the following figures.

55)



Perimeter

$P = (3y-4) + (3y-4) + (6y+2)$
 $P = 12y - 6$ units

Area

$A = \frac{1}{2}bh$ $A = \frac{bh}{2}$

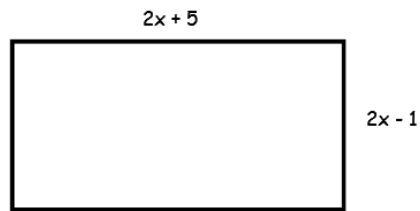
$A = \frac{1}{2}(6y+2)(2y)$

$A = (3y+1)(2y)$

$A = 6y^2 + 2y$

$A = 6y^2 + 2y$ units²

56)



Perimeter

$P = 2x-1 + 2x-1 + 2x+5 + 2x+5$

$P = 8x + 8$ units

Area

$A = lw$

$A = (2x+5)(2x-1)$

$A = 4x^2 - 2x + 10x - 5$

$A = 4x^2 + 8x - 5$

$A = 4x^2 + 8x - 5$ units²

57) Find the perimeter and area of a rectangular garden that measures $(3x)$ ft by $(2x^2 + 5)$ ft.

Perimeter

$2x^2 + 5 + 2x^2 + 5 + 3x + 3x$

$4x^2 + 6x + 10$ feet

Area

$A = lw$

$A = 3x(2x^2 + 5)$

$A = 6x^3 + 15x$

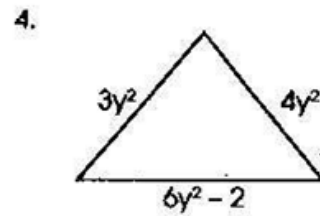
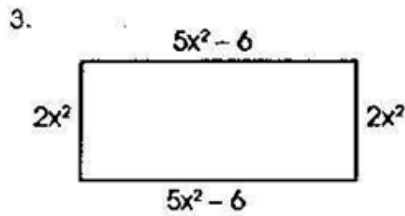
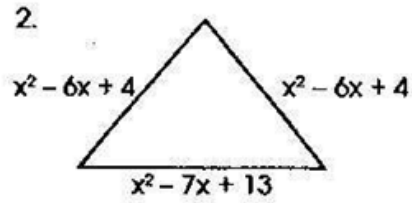
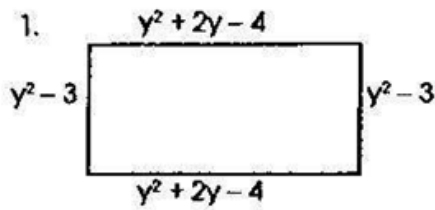
$6x^3 + 15x$ feet²

Polynomials

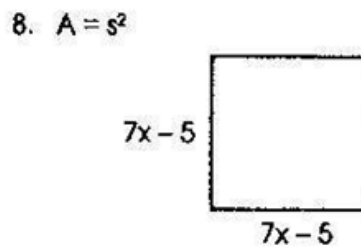
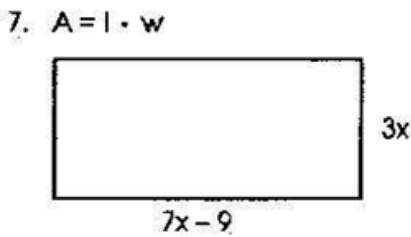
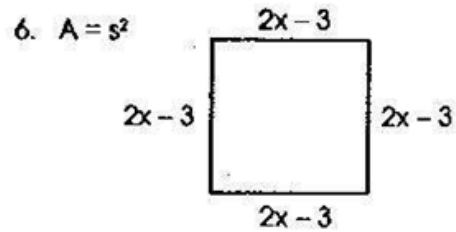
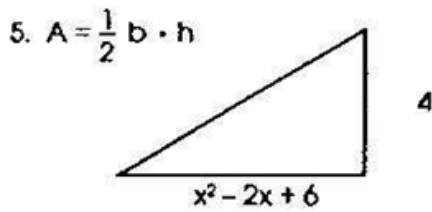
Solving Problems with Polynomials

Geometry

Find the perimeter of each polygon.



Find the area of each polygon.



$$\textcircled{1} P = 2l + 2w$$

$$P = 2(y^2 + 2y - 4) + 2(y^2 - 3)$$

$$P = 2y^2 + 4y - 8 + 2y^2 - 6$$

$$P = 4y^2 + 4y - 14 \text{ units}$$

$$\textcircled{2} P = 2(x^2 - 6x + 4) + (x^2 - 7x + 13)$$

$$P = 2x^2 - 12x + 8 + x^2 - 7x + 13$$

$$P = 3x^2 - 19x + 21 \text{ units}$$

$$\textcircled{3} P = 2l + 2w$$

$$P = 2(5x^2 - 6) + 2(2x^2)$$

$$P = 10x^2 - 12 + 4x^2$$

$$P = 14x^2 - 12 \text{ units}$$

$$\textcircled{4} P = (3y^2) + (4y^2) + (6y^2 - 2)$$

$$P = 3y^2 + 4y^2 + 6y^2 - 2$$

$$P = 13y^2 - 2 \text{ units}$$

$$\textcircled{5} A = \frac{bh}{2}$$

$$A = \frac{(x^2 - 2x + 6)(4)}{2}$$

$$A = \frac{4x^2 - 8x + 24}{2}$$

$$A = 2x^2 - 4x + 12 \text{ units}^2$$

$$\textcircled{6} A = s^2$$

$$A = (2x - 3)^2$$

$$A = (2x - 3)(2x - 3)$$

$$A = 4x^2 - 6x - 6x + 9$$

$$A = 4x^2 - 12x + 9 \text{ units}^2$$

$$\textcircled{7} A = lw$$

$$A = 3x(7x - 9)$$

$$A = 21x^2 - 27x \text{ units}^2$$

$$\textcircled{8} A = s^2$$

$$A = (7x - 5)^2$$

$$A = (7x - 5)(7x - 5)$$

$$A = 49x^2 - 35x - 35x + 25$$

$$A = 49x^2 - 70x + 25 \text{ units}^2$$