Algebra 2 Unit 3 Homework

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Review Questions

Indicate which expressions are polynomials.

1. $x^2+3x^{\frac{1}{2}}$
2. $\frac{1}{3}x^2y-9y^2$
3. $3x^{-3}$
4. $\frac{2}{3}t^2-\frac{1}{t^2}$

Express each polynomial in standard form. Give the degree of each polynomial.

5. $3-2x$
6. $8-4x+3x^3$
7. $-5+2x-5x^2+8x^3$
8. x^2-9x^4+12

Add and simplify.

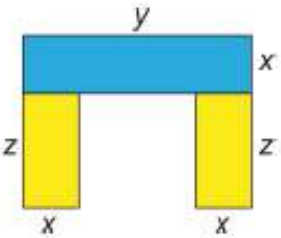
9. $(x+8)+(-3x-5)$
10. $(-2x^2+4x-12)+(7x+x^2)$
11. $(2a^2b-2a+9)+(5a^2b-4b+5)$
12. $(6.9a^2-2.3b^2+2ab)+(3.1a-2.5b^2+b)$

Subtract and simplify.

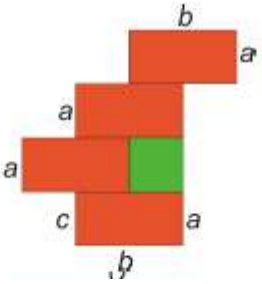
13. $(-t+15t^2)-(5t^2+2t-9)$
14. $(-y^2+4y-5)-(5y^2+2y+7)$
15. $(-5m^2-m)-(3m^2+4m-5)$
16. $(2a^2b-3ab^2+5a^2b^2)-(2a^2b^2+4a^2b-5b^2)$

Find the area of the following figures.

17.



18.



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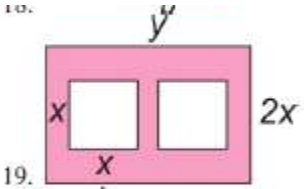
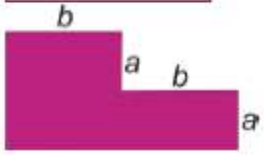


20.



Review Questions

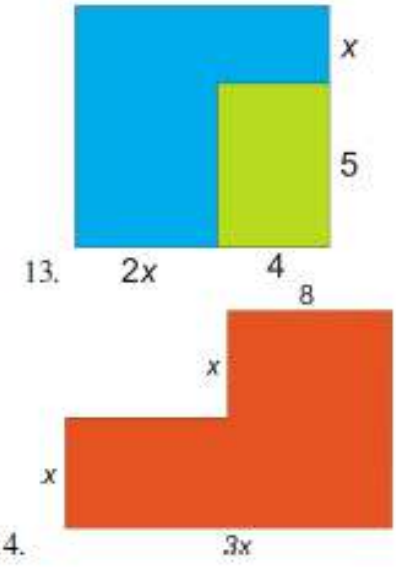
Multiply the following monomials.

1. $(2x)(-7x)$
2. $(-5a^2b)(-12a^3b^3)$
3. $(3xy^2z^2)(15x^2yz^3)$

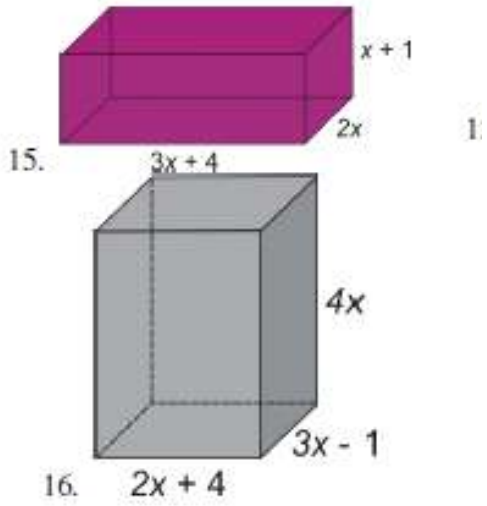
Multiply and simplify.

4. $2x(4x-5)$
5. $9x^3(3x^2-2x+7)$
6. $-3a^2b(9a^2-4b^2)$
7. $(x-3)(x+2)$
8. $(a^2+2)(3a^2-4)$
9. $(7x-2)(9x-5)$
10. $(2x-1)(2x^2-x+3)$
11. $(3x+2)(9x^2-6x+4)$
12. $(a^2+2a-3)(a^2-3a+4)$

Find the areas of the following figures.



Find the volumes of the following figures.



Review Questions

Use the special product for squaring binomials to multiply these expressions.

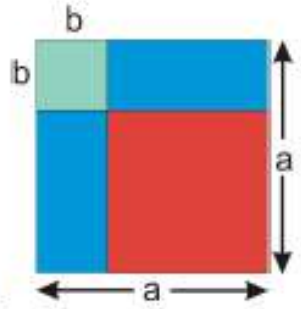
1. $(x+9)^2$
2. $(3x-7)^2$
3. $(4x^2+y^2)^2$
4. $(8x-3)^2$

Use the special product of a sum and difference to multiply these expressions.

5. $(2x-1)(2x+1)$
6. $(x-12)(x+12)$
7. $(5a-2b)(5a+2b)$
8. $(ab-1)(ab+1)$

Find the area of the orange square in the following figure. It is the lower right shaded box.

9.



Multiply the following numbers using the special products.

10. 45×55
11. 56^2
12. 1002×998
13. 36×44

Review Questions

Factor the common factor in the following polynomials.

1. $3x^3 - 21x$
2. $5x^6 + 15x^4$
3. $4x^3 + 10x^2 - 2x$
4. $-10x^6 + 12x^5 - 4x^4$
5. $12xy + 24xy^2 + 36xy^3$
6. $5a^3 - 7a$
7. $45y^{12} + 30y^{10}$
8. $16xy^{2z} + 4x^3y$

Solve the following polynomial equations.

9. $x(x+12) = 0$
10. $(2x+1)(2x-1) = 0$
11. $(x-5)(2x+7)(3x-4) = 0$
12. $2x(x+9)(7x-20) = 0$
13. $18y - 3y^2 = 0$
14. $9x^2 = 27x$
15. $4a^2 + a = 0$
16. $b^2 - \frac{5}{3b} = 0$

Review Questions

Factor the following quadratic polynomials.

1. $x^2+10x+9$
2. $x^2+15x+50$
3. $x^2+10x+21$
4. $x^2+16x+48$
5. $x^2-11x+24$
6. $x^2-13x+42$
7. $x^2-14x+33$
8. $x^2-9x+20$
9. $x^2+5x-14$
10. $x^2+6x-27$
11. $x^2+7x-78$
12. $x^2+4x-32$
13. $x^2-12x-45$
14. $x^2-5x-50$
15. $x^2-3x-40$
16. x^2-x-56
17. $-x^2-2x-1$
18. $-x^2-5x+24$
19. $-x^2+18x-72$
20. $-x^2+25x-150$
21. $x^2+21x+108$
22. $-x^2+11x-30$
23. $x^2+12x-64$
24. $x^2-17x-60$

Review Questions

Factor the following perfect square trinomials.

1. $x^2+8x+16$
2. $x^2-18x+81$
3. $-x^2+24x-144$
4. $x^2+14x+49$
5. $4x^2-4x+1$
6. $25x^2+60x+36$
7. $4x^2-12xy+9y^2$
8. x^4+22x^2+121

Factor the following difference of squares.

9. x^2-4
10. x^2-36
11. $-x^2+100$
12. x^2-400
13. $9x^2-4$
14. $25x^2-49$
15. $-36x^2+25$
16. $16x^2-81y^2$

Solve the following quadratic equation using factoring.

17. $x^2-11x+30=0$
18. $x^2+4x=21$
19. $x^2+49=14x$
20. $x^2-64=0$
21. $x^2-24x+144=0$
22. $4x^2-25=0$
23. $x^2+26x=-169$
24. $-x^2-16x-60=0$

Review Questions

Factor completely.

1. $2x^2 + 16x + 30$
2. $-x^3 + 17x^2 - 70x$
3. $2x^2 - 512$
4. $12x^3 + 12x^2 + 3x$

Factor by grouping.

5. $6x^2 - 9x + 10x - 15$
6. $5x^2 - 35x + x - 7$
7. $9x^2 - 9x - x + 1$
8. $4x^2 + 32x - 5x - 40$

Factor the following quadratic binomials by grouping.

9. $4x^2 + 25x - 21$
10. $6x^2 + 7x + 1$
11. $4x^2 + 8x - 5$
12. $3x^2 + 16x + 21$

Solve the following application problems:

13. One leg of a right triangle is 7 feet longer than the other leg. The hypotenuse is 13 feet. Find the dimensions of the right triangle.
14. A rectangle has sides of $x + 2$ and $x - 1$. What value of x gives and area of 108?
15. The product of two positive numbers is 120. Find the two numbers if one numbers is 7 more than the other.
16. Framing Warehouse offers a picture framing service. The cost for framing a picture is made up of two parts. The cost of glass is \$1 per square foot. The cost of the frame is \$2 per linear foot. If the frame is a square, what size picture can you get framed for \$20?