

Mid-Chapter 2 Review

/50 Form G

Lessons 2-1 through 2-4

Do you know HOW?

Find the degree of each monomial.

1. $8x^3$ **3**

2. 57 **0**

3. $6p^3q^2$ **5**

4. $81x^6y^3$ **9**

Simplify.

5. $(7t^2 + 9) + (6t^2 + 8)$
 $13t^2 + 17$

6. $5x^3y^2 - 7x^3y^2$
 $-2x^3y^2$

7. $(3m^2 + 2m - 8) + (4m^2 - 5m + 6)$
 $7m^2 - 3m - 2$

Simplify each product.

8. $3n(4n^2 + 5n)$
 $12n^3 + 15n^2$

9. $4k^2(3 - 4k)$
 $12k^2 - 16k^3$

10. $-7y^3(4y^2 + y - 3)$
 $-28y^5 - 7y^4 + 21y^3$

11. $(x + 7)(x + 5)$
 $x^2 + 12x + 35$

12. $(j + 3)(j - 4)$
 $j^2 - j - 12$

13. $(3x - 1)(x - 6)$
 $3x^2 - 19x + 6$

14. $(d + 4)(d + 4)$
 $d^2 + 8d + 16$

15. $(3a + 7)(3a - 7)$
 $9a^2 - 49$

16. $(2z - 3)^2$
 $4z^2 - 12z + 9$

17. A rectangle has length $x + 9$ and width $2x - 1$. What is the area of the rectangle?

$A = 2x^2 + 17x - 9$

18. A square has side length $(5x - 3)$ cm. What is the area of the square?

$A = 25x^2 - 30x + 9$

Do you UNDERSTAND?

19. Open-Ended: Write a trinomial with $3x$ as the GCF of its terms

ex: **$6x^3 + 9x^2 - 12x$**

20. Name each polynomial by degree and number of terms:

a. $7x^3$

~~Monomial~~ Cubic Monomial

b. $x^2 - 7x + 1$

Quadratic Trinomial

c. $3x - 5$

Linear Binomial

Chapter 2

Form G

Do you know HOW?

Find the degree of each monomial.

1. $6xy$ **2** 2. $-3b^2c^4$ **6** 3. $12m^7n$ **8**

Simplify each sum or difference.

4. $6r^3 + 7r^3 = 13r^3$ 5. $23u^2v - 19u^2v = 4u^2v$ 6. $(5g - 2g) + (2g^2 + 6g) = 2g^2 + 9g$
 7. The perimeter of a pentagon is $20t + 7$. Four sides have the following lengths: $6t$, $2t$, $4t - 5$, and $5t + 1$. What is the length of the fifth side? **$l = 3t + 11$**

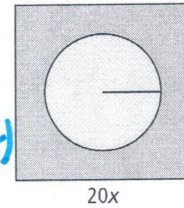
Simplify each product.

8. $3x(x + 6) = 3x^2 + 18x$ 9. $-z^2(z - 9) = -z^3 + 9z^2$ 10. $2x(4x^2 - 7x + 6) = 8x^3 - 14x^2 + 12x$

Factor each polynomial.

11. $12x - 9 = 3(4x - 3)$ 12. $24n^3 - 40n^2 + 72n = 8n(3n^2 - 5n + 9)$ 13. $14b^2c^3 + 21bc^5 = 7bc^3(2b + 3c^2)$

14. An artist is making a square stained glass window in which a green glass circle is surrounded by blue glass. The side length of the window is shown, and the area of the green piece is $64\pi x^2$. What is the area of the blue glass? Write your answer in factored form.



Blue glass = $16x^2(25 - 4\pi)$

Simplify each product using the stated method.

15. $(x - 2)(3x - 4)$; table = **$3x^2 - 10x + 8$**
 16. $(3x + 2)(x + 7)$; Distributive Property = **$3x^2 + 23x + 14$** 17. $(4x - 1)(2x + 5)$; FOIL Method = **$4x^2 + 18x - 5$**
 18. What is the surface area of a cylinder with radius $x + 3$ and height $x + 11$?
 $SA = 4\pi(x^2 + 10x + 21)$

Simplify each product.

19. $(x + 6)^2 = x^2 + 12x + 36$ 20. $(2s + 7)^2 = 4s^2 + 28s + 49$ 21. $(3x - 8)^2 = 9x^2 - 48x + 64$

Complete.

22. $x^2 + 9x + 18 = (x + 3)(x + \boxed{6})$ 23. $x^2 - 11x + 28 = (x - 4)(x - \boxed{7})$

Simplify each product.

24. $(v + 7)(v - 7) = v^2 - 49$ 25. $(5s - t)^2 = 25s^2 - 10st + t^2$ 26. $(3p^2 + 10q)(3p^2 - 10q) = 9p^4 - 100q^2$

Complex Numbers Review **KEY!**

Simplify each expression:

$$1. (8 + 2i) + (3 - 4i) = 11 - 2i$$

$$2. (2 + 5i) + (6 - i) = 8 + 4i$$

$$3. (-1 + 2i)(3 + 10i) = -23 - 4i$$

$$4. (3 + 2i) - (4 - i) = -1 + 3i$$

$$5. (2 + 3i)(3 - 2i) = 12 + 5i$$

$$6. (3 - 5i) - (-1 + 7i) = 4 - 12i$$

$$7. \frac{4+3i}{9i} = \frac{1}{3} - \frac{4}{9}i \quad \text{or} \quad \frac{3-4i}{9}$$

$$8. 3\sqrt{-25} + 4 = 4 + 15i$$

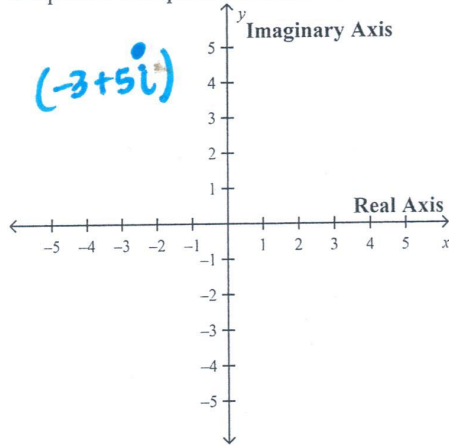
$$9. \sqrt{-24} = 2i\sqrt{6}$$

$$10. \frac{2-9i}{9+5i} = \frac{-27}{106} - \frac{91}{106}i \quad \text{or} \quad \frac{-27-91i}{106}$$

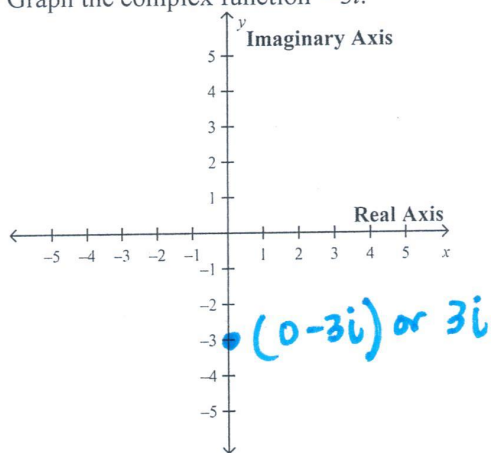
KEY!

Mid-Ch. 2 Reivew (pg. 4)

1. Graph the complex function $-3 + 5i$.



2. Graph the complex function $-3i$.



What is the absolute value of each complex number?

3. $1 - 5i$. $|1-5i| = \sqrt{(1)^2 + (-5)^2}$
 $= \sqrt{26}$

4. $2 + 3i$. $|2+3i| = \sqrt{(2)^2 + (3)^2}$
 $= \sqrt{13}$

5. $4i$. $|0+4i| = \sqrt{(0)^2 + (4)^2}$
 $= 4$