

Name:
Instructor:

Date:
Section:

Practice Set 5.3

Use the choices to fill in each blank.

$P(0)$	zero	descending	term
$P(a)$	one	ascending	factor

1. Before dividing a polynomial by a polynomial, place the terms in _____ order of the variable.
2. When using synthetic division to divide a polynomial by a binomial and a remainder of 0 is obtained, the quotient is a _____ of the polynomial.
3. The Remainder Theorem states that if a polynomial $P(x)$ is divided by $x - a$, then the remainder is _____.
4. When dividing a polynomial by a polynomial, if a term of any degree is missing, it is often helpful to include that term with a numerical coefficient of _____.

Divide.

5. $\frac{x^{10}}{x^3}$ 6. $\frac{18x^3y^4}{3xy^2}$ 5. _____

6. _____

7. $\frac{36m^5n^7p^3}{20m^3n^4p^2}$ 8. $\frac{32x^{10}y^7}{8x^8y^4}$ 7. _____

8. _____

9. $\frac{6x+9}{3}$ 10. $\frac{5x^2+10x}{5x}$ 9. _____

10. _____

11. $\frac{16x^2+8x+24}{8}$ 12. $\frac{6x^2y+18xy-9xy^2}{3xy}$ 11. _____

12. _____

13. $\frac{x^2+8x+15}{x+3}$ 14. $\frac{x^2+10x+24}{x+6}$ 13. _____

14. _____

15. $\frac{x^2+11x+26}{x+3}$ 16. $\frac{6x^2-5x-4}{2x+1}$ 15. _____

16. _____

Divide using long division.

17. $\frac{12x^2 - 25x + 12}{3x - 4}$

18. $\frac{20x^2 + 11x - 45}{4x + 7}$

17. _____

18. _____

19. $\frac{2x^4 + x^3 + 2x^2 + 5x + 2}{x^2 - x + 2}$

20. $\frac{a^4 - a^3 - 11a^2 + 5a + 6}{a^2 + 2a - 3}$

19. _____

20. _____

Divide using synthetic division.

21. $\frac{x^2 + x - 30}{x + 6}$

22. $\frac{x^2 + 6x - 27}{x - 3}$

21. _____

22. _____

23. $(x^2 + 4x - 32) \div (x - 4)$

24. $(x^2 + x - 45) \div (x - 6)$

23. _____

24. _____

Determine the remainder for the following divisions. If the divisor is a factor of the dividend, so state.

25. $(3x^2 - 4x - 15) \div (x - 3)$

26. $(2x^2 - x - 39) \div (x + 4)$

25. _____

26. _____

27. $(x^3 - 3x^2 - 10x + 24) \div (x - 2)$

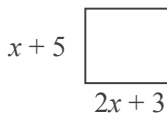
28. $(x^4 - 10x^2 + 11) \div (x + 3)$

27. _____

28. _____

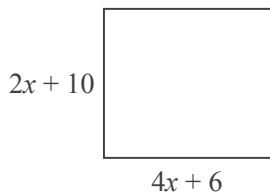
How many times greater is the area of the figure on the right than the figure on the left?

29.



29. _____

30.



30. _____