

7-1

Skills Practice

Polynomial Functions

State the degree and leading coefficient of each polynomial in one variable. If it is not a polynomial in one variable, explain why.

1. $a + 8$

1; 1

3. $-5x^5 + 3x^3 - 8$

5; -5

5. $u^3 + 4u^2v^2 + v^4$

no
two variables

2. $(2x - 1)(4x^2 + 3)$

3; 8

4. $18 - 3y + 5y^2 - y^5 + 7y^6$

6; 7

6. $2r - r^2 + \frac{1}{r^2}$

no, divide by variable

Find $p(-1)$ and $p(2)$ for each function.

7. $p(x) = 4 - 3x$

1; -2

9. $p(x) = 2x^2 - 4x + 1$

1; 1

11. $p(x) = x^4 + 8x^2 - 10$

-1; 38

8. $p(x) = 3x + x^2$

-2; 10

10. $p(x) = -2x^3 + 5x + 3$

0; -3

12. $p(x) = \frac{1}{3}x^2 - \frac{2}{3}x + 2$

3; 2

If $p(x) = 4x^2 - 3$ and $r(x) = 1 + 3x$, find each value.

13. $p(a)$

$4a^2 - 3$

15. $3r(a)$

$3 + 9a$

17. $p(a^2)$

$4a^4 - 3$

14. $r(2a)$

$1 + 6a$

16. $-4p(a)$

$-16a^2 + 12$

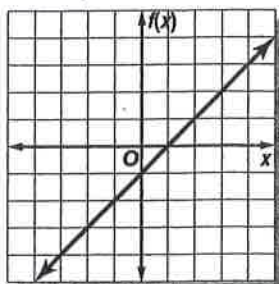
18. $r(x + 2)$

$1 + 3x$

For each graph,

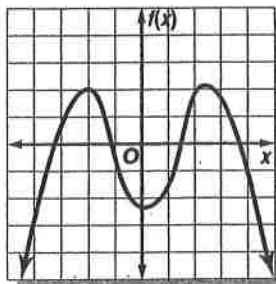
- describe the end behavior,
- determine whether it represents an odd-degree or an even-degree polynomial function, and
- state the number of real zeroes.

19.



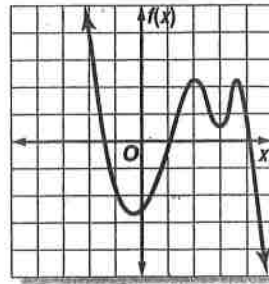
↘ ↗
odd, 1

20.



↘ ↘ even 4

21.



↗ ↘ odd, 3

Lesson 7-1