7.5 Practice Set

1. What is the meaning of the symbol ! in mathematics?
2. What information about a binomial expansion does Pascal's Triangle provide?
3. What is the Binomial Theorem and how is it related to Pascal's Triangle?

Use Pascal's Triangle to expand the given binomial.

4. $(x + y)^6$
5. $(2m + n)^4$
6. $(a + 3b)^5$
7. $(2x - y)^7$
8. $(2m + 3n)^4$

Evaluate each of the following factorial expressions and simplify completely.

9. $6!$
10. $\frac{6!}{4!}$
11. $\frac{10!}{7!}$
12. $\frac{10!}{7!3!}$
13. $\frac{8!}{2!6!}$
14. $\frac{9!}{4!5!}$

15. $\frac{7!}{0!7!}$

16. $\frac{12!}{4!8!}$

Use the Binomial Theorem to expand the binomial.

17. $(x + 2y)^3$

18. $(3s + t)^4$

19. $(4x - 5y)^3$

20. $(2r - s)^5$

Distributed Practice Problems

Evaluate each of the following series if possible. If it is not possible, state the reason.

21. $\sum_{k=1}^{32}(3k - 7)$

22. $\sum_{j=1}^{8} 2(3)^{j-1}$

23. $\sum_{k=1}^{4} \frac{2k+1}{k-1}$

24. $\sum_{j=1}^{\infty} 5\left(\frac{1}{2}\right)^{j-1}$

25. $\sum_{i=1}^{\infty} -2\left(\frac{4}{3}\right)^{i-1}$