

1. For  $a=5, d=3$ , find  $u_8$ .

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2. Find the coefficient of  $x^2$  in  $(1+2x)^5$ .

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3. Evaluate  $4!$ .

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4. For  $u_1=1$  and  $u_{(n+1)}=u_n/2+3$ , find  $u_2$ .

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5. Evaluate the sum of  $(2k-1)$  from  $k=3$  to 7.

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6. A noninteger solution for an exact term count can be rounded to the nearest integer.

☐ True    ☐ False

7. A geometric series converges when  $|r|<1$ , and negative ratios such as  $-1/2$  are included.

☐ True    ☐ False

8. A deposit at the start of a period earns one more period of interest, so the final balance is larger.

☐ True    ☐ False

9. A sum to infinity exists only when  $-1<r<1$ .

☐ True    ☐ False

10. For a negative or fractional power the expansion is an infinite series, valid only for  $|x|<1$ .

☐ True    ☐ False

1. **26.0**

$$u_8 = 5 + (8-1) \times 3 = 26.$$

2. **40.0**

Choose two of five factors and include  $2^2$ :  $C(5,2) \times 4 = 40$ .

3. **24.0**

$$4! = 4 \times 3 \times 2 \times 1 = 24.$$

4. **3.5**

$$u_2 = 1/2 + 3 = 7/2 = 3.5.$$

5. **45.0**

Add  $5+7+9+11+13=45$ .

6. **False**

A number of terms must be a whole number; a noninteger solution means no term takes that value.

7. **True**

True. A geometric series converges when  $|r| < 1$ , and negative ratios such as  $-1/2$  are included.

8. **True**

True. A deposit at the start of a period earns one more period of interest, so the final balance is larger.

9. **True**

True. A sum to infinity exists only when  $-1 < r < 1$ ; for  $r=2$  the terms grow without limit.

10. **True**

True. For a negative or fractional power the expansion is an infinite series, valid only for  $|x| < 1$ .