1. Rewrite the bases:
$$\left(\frac{5^3}{3^3}\right) \times \left(\frac{5}{3}\right)^x = \left(\frac{5^2}{3^2}\right)^2$$

   Simplify the right-hand side:
$$\frac{5^3}{3^3} \times \frac{5^x}{3^x} = \frac{5^4}{3^4}$$

   Combine the exponents:
$$\frac{5^{3+x}}{3^{3+x}} = \frac{5^4}{3^4}$$

   Equate the exponents:
$$3 + x = 4 \implies x = 1$$

   Answer: $\boxed{A}$

2. Simplify the exponents:
$$\frac{(-3)^{4+0-2}}{(-3)^2} = \frac{(-3)^2}{(-3)^2} = 1$$

   Answer: $\boxed{A}$

3. Rewrite 8 as 2^3:
$$2^{2n-1} = \frac{1}{(2^3)^{n-3}} \implies 2^{2n-1} = 2^{-3(n-3)}$$

   Equate the exponents:
$$2n - 1 = -3n + 9 \implies 5n = 10 \implies n = 2$$

   Answer: $\boxed{B}$

4. Simplify each term:
$$\left(\frac{1}{2}\right)^{-2} = 2^2 = 4, \quad \left(\frac{1}{3}\right)^{-2} = 3^2 = 9, \quad 13^0 = 1$$

   Substitute and simplify:
$$\frac{4+9}{1} = 13$$

   Answer: $\boxed{A}$

5. Rewrite in standard form:
$$0.00000056 \times 10^2 = 5.6 \times 10^{-8} \times 10^2 = 5.6 \times 10^{-6}$$

   Answer: $\boxed{B}$

6. Calculate x and y:

$$x = (-2)^3 = -8, \quad y = (-3)^2 = 9$$

Sum the values:

$$x + y = -8 + 9 = 1$$

Answer: $\boxed{A}$

7. Simplify each term:

$$\left(a^{x-y}\right)^{x+y} \times \left(a^{y-z}\right)^{y+z} \times \left(a^{z-x}\right)^{z+x} = a^{(x-y)(x+y)} \times a^{(y-z)(y+z)} \times a^{(z-x)(z+x)}$$

Expand the exponents:

$$= a^{x^2-y^2} \times a^{y^2-z^2} \times a^{z^2-x^2} = a^{x^2-y^2+y^2-z^2+z^2-x^2} = a^0 = 1$$

Answer: $\boxed{C}$

8. Simplify the expression:

$$\frac{(2^3 \times 3^2)^2}{2^2 \times 3^3} = \frac{2^6 \times 3^4}{2^2 \times 3^3} = 2^{6-2} \times 3^{4-3} = 2^4 \times 3^1 = 2^4 \times 3$$

Answer: $\boxed{A}$

9. Rewrite 0.0001 as a power of 10:

$$10^x = 10^{-4} \implies x = -4$$

Answer: $\boxed{B}$

10. Simplify the expression:

$$\frac{2^n + 2^{n-1}}{2^{n+1} - 2^n} = \frac{2^{n-1}(2+1)}{2^n(2-1)} = \frac{2^{n-1} \times 3}{2^n \times 1} = \frac{3}{2}$$

Answer: $\boxed{C}$

11. Simplify the equation:

$$(2^2)^n = 2^{3+5} \implies 2^{2n} = 2^8$$

Equate the exponents:

$$2n = 8 \implies n = 4$$

Answer: $\boxed{A}$

12. Rewrite in standard form:

$$149,600,000,000 = 1.496 \times 10^{11} \text{ m}$$

Answer: $\boxed{A}$

13. Simplify the expression:

$$\left[\left(\frac{1}{9}\right)^{-2}\right]^{-1} = \left[9^2\right]^{-1} = 81^{-1} = \frac{1}{81}$$

Answer: $\boxed{A}$

14. Rewrite 9 as 3^2:
$$3^{x+1} = (3^2)^{x-2} \implies 3^{x+1} = 3^{2x-4}$$

Equate the exponents:
$$x + 1 = 2x - 4 \implies x = 5$$

Answer: $\boxed{A}$

15. Substitute the values:
$$\left(\frac{3}{2}\right)^{0-1} = \left(\frac{3}{2}\right)^{-1} = \frac{2}{3}$$

Answer: $\boxed{A}$