1. Write each expression as a product of powers or a quotient of powers.

a) (3 × 2)4 b) [(–4) × 3]2

c) [(–2) × (–4)]3 d) (7 × 11)0

e) (10 ÷ 5)3 f) [(–12 ) ÷ (–6)]2

g)  h) 

2. Write as a power.

a) (34)2 b) (50)3

c) –(72)2 d) [(–3)3]2

3. Why is the value of [(–3)3]2 positive and the value of [(–3)3]3 negative?

4. Simplify, then evaluate.

a) (23 × 21)2 b) (54 ÷ 52)2

c) [(–3)0 × (–3)3]2 d) (102)4 ÷ (103)2

5. Simplify, then evaluate each expression.

a) (32 × 43)2 – (44 ÷ 42)2

b) (23 ÷ 22)3 + (74 × 73)0

c) [(–1)3]4 – [(–1)4 ÷ (–1)3]2

d) (42 × 43)0 – (32)2

e) (52 × 50)3 + (25 ÷ 23)3

f) (106 ÷ 103)2 + (23 ÷ 21)4

6. Find and correct any errors in each solution.

a) (43 × 22)2 = (85)2

= 810

= 1 073 741 824

b) [(–10)3]4 = (–10)7

= –10 000 000

c) (22 + 23)2 = (25)2

= 210

= 1024