Simplify the following (note that ‘x’ means multiply throughout this worksheet)

Bronze

1. 3p + 2p x 4 7. 2m- 2m x 2m + 2m
2. 4 x 3q – 8q 8. 16rs + 6r x 6s
3. p – p x 4p 9. 5t x 4t x 3t – 2t x t
4. 6qp + 4pq 10. 4rf - 6fr + r x 5f
5. 12e x y – 3y x 4e 11. 2b – 2b x 4a – 4a
6. -2a – 4 x 3a +7a 12. 3abc + 3ac x 2b – 2ca +b

Silver

1. p2q + 5p x 4pq 6. -8ab – 4 x 2ba +4ab
2. -8 x 3zq – 5qz 7. 2m2- 2m3 x 2m + 2m4
3. p7 – p3 x 4p3 8. 21r5s2 + 3s5 x 7r2
4. 61q3p2 + 14p2q3 9. 3t x 4s2 x 3t – (2st)2
5. (5st)2 + 5st2 +5s2t +5s2t2 10. 3r3f - 8fr3 + 7r x 2fr2

Gold

1. 4pr + 2r3p x 4p – 6r x 12p +18pr3
2. 16ab2 – (12ab)2 – a x (-3b2) – 8a2b2
3. a – a x a + a x a x a – a x a + a – a x a + a x 2
4. ab -2ba +ab2 – ba2 –b + a x 3b – a x b x b x 7
5. 8m2 + 2 x ((3m)2-7m2)3 x 4m2

Answers

Bronze

1. 11p 7. 4m- 4m2
2. 4q 8. 52rs
3. p – 4p2  9. 60t3 - 2t2
4. 10pq 10. 3rf
5. 0 11. 2b – 8ab – 4a
6. -5a 12. 9abc – 2ca +b

Silver

1. 6p2q 6. -12ab
2. 29qz 7. 2m- 2m4
3. p7 – 4p6 8. 21r5s2 + 21s5r2
4. 61q3p2 + 14p2q3 9. 32s2t2
5. 30s2t2 +5s2t +5st2 10. 8fr3

Gold

1. 26p2r3 -68pr
2. 19ab2 - 152 a2b2
3. 4a – 3a2 + a3
4. 2ab –b - 6ab2 - a2b
5. 8m2 + 64m8