Lesson 1.2.2: Factoring by Grouping

Steps in Factoring by Grouping:

1. Determine if there is a GCF common to all four terms. If there is one then begin by factoring out this GCF.
2. Arrange the four terms so that the first two terms and the last two terms have common factors.
3. If the coefficient of the third term is negative, factor out a negative coefficient from the last two terms.
4. Use the reverse of the distributive property to factor each group of two terms.
5. Now factor the GCF from the result of step 4.

Practice Exercises 1.2.2

Factor the following polynomials completely.

1. $4wt+2wh+6it+3ih$
2. $15te-12he+10ty-8hy$
3. $hv+av+he+ae$
4. $10ti-8ts-15hi+12hs$
5. $88fo+16ro-99fm-18rm$
6. $12a^3-9a^2+4a-3$
7. $2p^3+5p^2+6p+15$
8. $3n^3-4n^2+9n-12$
9. $12n^3+4n^2+3n+1$
10. m^3-m^2+2m-2

Activity 1.2.2

Factor the following polynomials completely.

1. $7am+35bm+9ad+45bd$
2. $42wa+54wt+56da+72dt$
3. $36yw-24nb+12bw-72yn$
4. $72he+16we+27hn+6wn$
5. $26wy-91by+35bd-10wd$
6. $12bc+15be-8cd-10de$
7. $10ep-25eq+2fp-5fq$
8. $8mp-12mq-6np+9nq$
9. $12ax^2+15ay+16b^2x^2+20b^2y$
10. $15a^3c^2-12a^3d^3-10b^2c^2+8b^2d^3$

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