

#1-12, Factor each trinomial.

1. $2a^2 + 9a + 10$

$(2a^2 + 5a) + (4a + 10)$
 $a(2a+5) + 2(2a+5)$
 $(a+2)(2a+5)$

20
 \wedge
 1 20
 2 10
 4 5

2. $5b^2 + 11b + 2$

$(5b^2 + 10b) + (b + 2)$
 $5b(b+2) + 1(b+2)$
 $(5b+1)(b+2)$

10
 \wedge
 1 10
 2 5

3. $c^2 + 10c - 24$

$(c+12)(c-2)$

no leading coefficient

don't need long method

4. $5d^2 + 9d - 6$

prime

-30
 \wedge
 1 30
 2 15
 3 10
 5 6

none \rightarrow add/subtract to 9

5. $15e^2 + 4e - 3$

$(15e^2 + 9e) - (5e - 3)$
 $3e(5e+3) - 1(5e-3)$
 $(3e-1)(5e+3)$

-45
 \wedge
 1 45
 3 15
 5 9

6. $-4f^2 - 16f + 9$

$(-4f^2 - 18f) + (2f + 9)$
 $-2f(2f+9) + 1(2f+9)$
 $(-2f+1)(2f+9)$
 or $(2f-1)(-2f-9)$

36
 \wedge
 1 36
 2 18
 3 12
 4 9
 6 6

7. $9g^2 + 18g + 9$

Did you GCF first? $\frac{9}{9}$

$9(g^2 + 2g + 1)$
 $9(g+1)(g+1)$

8. $3h^2 - h - 4$

$(3h^2 - 4h) + (3h - 4)$
 $h(3h-4) + 1(3h-4)$
 $(h+1)(3h-4)$

-12
 \wedge
 3 4
 2 6
 1 12

9. $4j^2 - 17j + 15$

$(4j^2 - 12j) + (5j + 15)$
 $4j(j-3) + 5(j+3)$
 $(j-3)(4j-5)$

60
 \wedge
 1 60
 2 30
 3 20
 4 15
 5 12
 6 10

10. $k^2 + 9k - 10$

$(k+10)(k-1)$

no leading coefficient

11. $-4m^2 - 4m + 15$

$(-2m-5)(2m-3)$
 or
 $(2m+5)(-2m+3)$

12. $6n^2 - 13n + 6$

$(3n-2)(2n-3)$

#13-15, Factor completely, Use all the steps of factoring (i.e. try to find a GCF first)

4 terms = group

13. $4p^2 + 16p + 16$

GCF $4(p^2 + 4p + 4)$
 $4(p+2)(p+2)$

14. $20q^3 + 62q^2 + 30q$

GCF $2q(10q^2 + 31q + 15)$
 $(10q^2 + 25q) + (6q + 15)$
 $5q(2q+5) + 3(2q+5)$
 $2q(5q+3)(2q+5)$

150
 \wedge
 10 15
 30 5
 25 6

15. $(15r^3 + 45r^2)(r+3)$

$15r^2(r+3) + 1(r+3)$
 $(15r^2+1)(r+3)$