Quick Check 6.3.7

Factor completely.

$90m^2 - 19m - 90$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○A. $90m^2 - 19m - 90 =$ ■ (Factor completely.)

○B. **The polynomial is prime.**

Factors that give 90

1, 90
2, 45
3, 30
5, 18
6, 15
9, 10

$(9x - 10)(10x + 9)$

$-100 + 81 = -19.$

8100

−19

$90m^2 + 81m - 100m - 90$

$9m(10m + 9) - 10(10m + 9)$

$(10m + 9)(9m - 10)$

1, 8100
2, 4050
3, 2700
4, 2025
5, 1620
6, 1350
8, 1215
9, 1080
10, 810
12, 675
15, 540
18, 450
20, 405
25, 324
27, 300
30, 270
36, 225
45, 180
50, 162
96 ← 54, 150
75 ← 60, 135

81, 100
90, 90

Quick Check 6.3.15

Factor the trinomial completely using the trial and error method.

$-14y^2+125y+9$

$-14y^2+125y+9=\square$

factor out -1:

$-(14y^2-125y-9)$

factors of 14	factors of 9
1, 14	1, 9
2, 7	3, 3

$(y-9)(14y+1)$

$-126+1=-125$ right #, wrong sign

$\boxed{-(y+9)(14y-1)}$

$-(14y^2-125y-9)$

-126, -126, +1, -125

$=-[14y^2-126y+y-9]$

$=-[14y(y-9)+(y-9)]$

$=\boxed{-(y-9)(14y+1)}$

6.3.35 Factor completely.

$35x^2 - 82x + 48$

$35x^2 - 82x + 48 = (7x - 8)(5x - 6)$

Guess & check

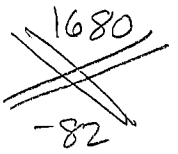
$(5x \quad)(7x \quad)$

$(5x - 8)(7x - 6)$

$-30 - 56x$

$(5x - 6)(7x - 8)$

$-40 - 42$ ✓



$35x^2 - 40x - 42x + 48$

$= 5x(7x - 8) - 6(7x - 8)$

$= \boxed{(7x - 8)(5x - 6)}$

1, 1680
2, 840
3, 560
4, 420
5, 336
6, 280
7, 240
8, 210
10, 168
12, 140
14, 120
15, 112
16, 105
20, 84
21, 80
24, 70
28, 60
30, 56
35, 48
40, 42

6.3.35 **Factor completely.**

$33x^2 - 46x + 16$

$33x^2 - 46x + 16 = \boxed{(11x+3)(3x-3)}$

1, 33
and
1, 16
2, 8
4, 4

$(11x-4)(3x-4)$

$33x^2 - 44x - 12x + 16$

$-56x$ NO

$(11x-1)(3x-16)$

$-3x - 176x$ NO

$(11x-16)(3x-1)$

$-11x - 48x = -59x$ NO.

$(33x-4)(x-4)$

$-4x - 132x$ NO.

$(33x-1)(x-16)$

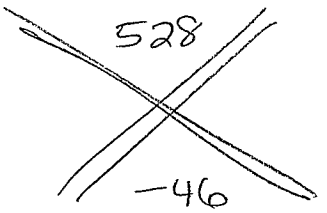
$-x - 528x$ NO

$(33x-16)(x-1)$

$-16 - 33 = -49$ No.

$\boxed{(11x-8)(3x-2)}$

$-24x - 22x = -46x$



1, 528
2, 264
3, 176
4, 132
6, 88
8, 66
11, 48
12, 44
16, 33
22, 24. ✓

$33x^2 - 22x - 24x + 16$

$11x(3x-2) - 8(3x-2)$

$\boxed{(11x-8)(3x-2)}$

6.3.43 **Factor the trinomial completely.**

$$84s^2 - 38sr - 70r^2$$

$$84s^2 - 38sr - 70r^2 = \square$$

GCF first

$= 2(42s^2 - 19sr - 35r^2)$

Factors of 42: 1,42 / 2,21 / 3,14 / 6,7

Factors of 35: 1,35 / 5,7

Guess and check

$(6s \quad 5r)(7s \quad 7r)$ has GCF ✗

$(6s - 7r)(7s + 5r)$

$30rs - 49rs = -19rs$ ✓

$= \boxed{2(6s - 7r)(7s + 5r)}$

6.3.85 Factor.

$25c^2+29c+9$

Select the correct choice below and fill in any answer boxes within your choice.

A. $25c^2+29c+9=$ ■

B. The expression is prime.

It's prime because $25c^2$ and 9 are perfect squares, but

$(5c+3)(5c+3)$

gives $25c^2+15c+15c+9$

$= 25c^2+30c+9$

which has the wrong middle term.