

SMART START

— Solve

$$52 - x^2 + x = 10$$

-10 -10

$$-x(x-7) - 6(x-7)$$

$$42 - x^2 + x$$

$$(-x-6)(x-7) = 0$$

$$-x^2 + 7x - 6x + 42 = 0$$

$$\begin{aligned} -x-6 &= 0 \\ +6 &+6 \\ -x &= 6 \\ x &= -6 \\ -6, 7 \end{aligned}$$

$$x^2 - x - 42 = 0$$

$$(x-7)(x+6) = 0$$

$$x = 7, -6$$

$$\begin{aligned} -42 \\ -7 \overline{) 42} \end{aligned}$$

$$\underline{-x^2 - 6x + 7x + 42 = 0}$$

$$-x(x+6) + 7(x+6) = 0$$

$$(-x+7)(x+6) = 0$$

$$x = 7, -6$$

2.5B

12) $5pq(2p - q)$

15) $4mn(3m - 2n)$

18) $4r^2(2r^3 - 5r^2 - 3)$

21) $0, \frac{4}{3}$

24) $0, \frac{5}{6}$

27) $-\frac{13}{17}, 0$

2.6B

3) $(y - 9)(y - 6)$

6) $(x + 6)(x - 4)$

9) 12

12) $-9, -8$

15) 8

18) 3, 10

21) $-8, -5$

24) 2, 9

2.7B

2) $(-2m + 3)(m - 8)$

4) $(2r + 5)(4r + 3)$

6) $(y - 3)(10y - 6)$

8) $-\frac{3}{2}, -\frac{1}{2}$ $\left. \begin{array}{l} 2(5y-3) \\ (\sqrt{-3}) \end{array} \right\}$

10) $-\frac{5}{2}, -\frac{1}{3}$

12) $\frac{3}{10}, \frac{3}{4}$

14) $-\frac{4}{5}, \frac{2}{3}$

16) $\frac{5}{8}, \frac{5}{2}$

18) $-2, \frac{11}{10}$

20) $-\frac{3}{2}, \frac{5}{6}$

2.8B

1) $(5x - 9)(5x + 9)$

2) $((15p - 10)(15p + 10)$

3) $(11w - 25)(11w + 25)$

4) $(6m - 8)(6m + 8)$

5) $\left(\frac{3}{4}r - \frac{1}{4}\right)\left(\frac{3}{4}r + \frac{1}{4}\right)$

6) $(9x - 7y)(9x + 7y)$

14) $-\frac{8}{5}, \frac{8}{5}$

15) -9

16) $-\frac{7}{2}, \frac{7}{2}$

17) 10

18) $\frac{11}{6}$

19) $\frac{4}{15}$

26) 90

27) 140

28) 36

2.9B

$$3) - 2(m + 1)(m + 7)$$

$$6) 5b^2(b + 4)^2$$

$$9) - 5(2t - 5)(t + 3)$$

$$12) (3x - 8y)(3x + 8y)$$

$$15) 25x^2y(x - 4)$$

$$18) 0, -\frac{5}{3}, \frac{1}{2}$$

$$21) -6, 0$$

$$24) -\frac{5}{6}, \frac{5}{6}$$

$$27) 14$$

$$30) 0, -\frac{10}{9}, \frac{10}{9}$$

1 The factors of A times C must add to B .

True

False

2 The standard form of a quadratic expression is

$$ax^2 + bx + c$$

Yes

No

3 Factor completely or Solve

$$30xy - 45x^2$$

- A $5x(6y - 9x)$
- B $15x(2y - 3x)$
- C $15x^2(6y - 9)$

4 Factor completely or solve

$$5b^4 + 40b^3 + 80b^2$$

A $5(b^2 + 4b)(b^2 + 4b)$

B $5b^2(b + 4)^2$

C $5b^4 + 20b^3 + 20b^3 + 80b^2$

$$5b^2(b^2 + 8b + 16)$$

$$5b^2(b + 4)^2$$

5 Factor completely or solve

$$9x^2 - 64y^2$$

A $(3x - 8y)(3x - 8y)$

B $(3x - 8y)^2$

C $(3x - 8y)(3x + 8y)$

6 Factor completely or solve

$$-19x^2 + 76 = 0$$

A $x = \pm 2, 0$

B $x = \pm 4$

C $x = \pm 2$

$$\frac{-19x^2}{-19} = \frac{-76}{-19}$$

$$x^2 = 4$$

$$2, -2$$

$$-19(x^2 - 4) = 0$$

$$(x-2)(x+2) = 0$$

$$x = \pm 2$$

7 Factor completely or solve

$$-19x^3 + 76x = 0$$

A $x = \pm 2, 0$

B $x = \pm 4$

C $x = \pm 2$

$$-19x(\underbrace{x^2 - 4}) = 0$$

$$\begin{array}{ccc} -19x(x-2)(x+2) = 0 \\ \parallel & \parallel & \parallel \\ 0 & 0 & 0 \end{array}$$

$$x = 0, \pm 2$$

8 Factor completely or solve

$$2p^2 = 12p + 54$$

A $x = \pm 9$

B $x = -3, 9$

C $x = -3, 9, 0$

$$2p^2 - 12p - 54 = 0$$

$$p^2 - 6p - 27 = 0 \quad \begin{array}{l} -27 \\ \hline -9 \quad 3 \end{array}$$

$$(p-9)(p+3) = 0$$

$$9, -3$$