

8.7

Choose the correct factorization. If neither is correct, find the correct factorization.

1. $2x^2 - 3x - 20$

$(2x+5)(x-4)$

A) $(2x+5)(x-4)$

B) $(2x+10)(x-2)$

2. $3x^2 + 11x - 4$

$(3x-1)(x+4)$

A) $(3x-1)(x+4)$

B) $(3x-2)(x+2)$

3. $3x^2 - 12x + 12$

$3(x^2 - 4x + 4)$

$3(x-2)^2$

A) $(x-3)(3x-4)$

B) $(x-2)(3x-6)$

Factor or solve as applicable if possible.

4. $2x^2 - 5x - 3$

$x^2 - 5x - 6$
 $(x-6)(x+1)$

$(x-3)(2x+1)$

$(x-3)(2x+1)$

5. $5x^2 + 7x + 2$

$x^2 + 7x + 10$
 $(x+5)(x+2)$

$(x+1)(5x+2)$

6. $6x^2 - 11x + 3$

$x^2 - 11x + 18$
 $(x-9)(x-2)$

$(x-\frac{3}{2})(x-\frac{1}{3})$

$(2x-3)(3x-1)$

7. $30x^2 + x - 1$

$x^2 + x - 30$
 $(x+6)(x-5)$

$(x+\frac{1}{5})(x-\frac{1}{6})$

$(5x+1)(6x-1)$

8. $17b^3 - 34b^2 = 0$

$17b^2(b-2) = 0$

$0, 2$

9. $5m^3 + 50m^2 + 125m$

$5m(m^2 + 10m + 25)$

$5m(m+5)^2$

10. $12 + 2x^2 + 14x = 0$

$$2(x^2 + 7x + 6) = 0$$

$$2(x+6)(x+1) = 0$$

$$\boxed{-6, -1}$$

11. $35a^3 + 28a^4$

$$\boxed{7a^3(4a+5)}$$

12. $x^2 - 15x - 36$

not factorable

13. $3n^2 - 7n + 2 = 0$

$$n^2 - 7n + 6 = 0$$

$$(n - \frac{6}{3})(n - \frac{1}{3}) = 0$$

$$(n-2)(3n-1) = 0$$

$$\boxed{\frac{1}{3}, 2}$$

14. $-15 = 4a^2 - 16a$

$$0 = 4a^2 - 16a + 15$$

$$0 = (a^2 - 4a + \frac{15}{4})$$

$$0 = (a - \frac{5}{2})(a - \frac{3}{2})$$

$$0 = (2a - 3)(2a - 5)$$

$$0 = (2a - 3)(2a - 5)$$

$$\boxed{\frac{3}{2}, \frac{5}{2}}$$

15. $10b^2 - 15b = 8b - 12$

$$10b^2 - 23b + 12 = 0$$

$$b^2 - 23b + 120 = 0$$

$$(b - \frac{15}{10})(b - \frac{8}{10}) = 0$$

$$(b - \frac{3}{2})(b - \frac{4}{5}) = 0$$

$$(2b - 3)(5b - 4) = 0$$

$$\boxed{\frac{3}{2}, \frac{4}{5}}$$

BONUS PROBLEMS:

16. Solve: $x^2 = 144$

$$\boxed{\pm 12}$$

17. Solve: $(x+8)^2 = 4$

$$x^2 + 16x + 64 = 4$$

$$x^2 + 16x + 60 = 0$$

$$(x+6)(x+10) = 0$$

$$\boxed{-6, -10}$$