

Simplify each.

1. $(8 - \sqrt{14})^2$

2. $(\sqrt{33} + 5\sqrt{6})^2$

3. $(9 + 2\sqrt{5})(9 - 2\sqrt{5})$

4. $(4\sqrt{10} - \sqrt{3})(4\sqrt{10} + \sqrt{3})$

5. A bakery uses a special flour mixture that contains corn, wheat, and rye in the ratio 3 : 5 : 2. If a bag of the mixture contains 5 pounds of rye how many pounds of wheat does it contain?

- A. 2 B. 5 C. 7.5 D. 10 E. 12.5

Simplify each.

1. $(8 - \sqrt{14})^2$

$$= 78 - 16\sqrt{14}$$

| | |
|-----------------|---------------------|
| 8 - $\sqrt{14}$ | |
| 8 | $64 - 8\sqrt{14}$ |
| $- \sqrt{14}$ | $- 8\sqrt{14} + 14$ |

2. $(\sqrt{33} + 5\sqrt{6})^2$

$$= 183 + 10\sqrt{198}$$

$$= 183 + 10 \cdot 3\sqrt{22}$$

$$= 183 + 30\sqrt{22}$$

| | |
|-------------------------|----------------------------|
| $\sqrt{33} + 5\sqrt{6}$ | |
| $\sqrt{33}$ | $33 + 5\sqrt{198}$ |
| $+ 5\sqrt{6}$ | $5\sqrt{198} + 25 \cdot 6$ |
| | 150 |

3. $(9 + 2\sqrt{5})(9 - 2\sqrt{5})$

$$a^2 - b^2 = (9)^2 - (2\sqrt{5})^2 = 81 - 4 \cdot 5$$

$$= 81 - 20$$

$$= 61$$

4. $(4\sqrt{10} - \sqrt{3})(4\sqrt{10} + \sqrt{3})$

$$a^2 - b^2 = (4\sqrt{10})^2 - (\sqrt{3})^2$$

$$= 16 \cdot 10 - 3$$

$$= 160 - 3 = 157$$

5. A bakery uses a special flour mixture that contains corn, wheat, and rye in the ratio 3 : 5 : 2. If a bag of the mixture contains 5 pounds of rye how many pounds of wheat does it contain?

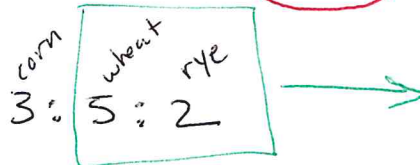
A. 2

B. 5

C. 7.5

D. 10

E. 12.5



$$\frac{5 \text{ wheat}}{2 \text{ rye}} = \frac{x \text{ lb wheat}}{5 \text{ lb rye}}$$

$$x = 12.5 \text{ lbs wheat}$$