

# Worksheet: Factorization using the Highest Common Factor



**Q1:** Write  $\frac{3}{5}x + \frac{9}{10}$  in the form  $\frac{3}{10}(ax + b)$ .

A  $\frac{3}{10}\left(\frac{3}{5}x + 3\right)$

B  $\frac{3}{10}(2x + 3)$

C  $\frac{3}{10}\left(2x + \frac{9}{10}\right)$

D  $\frac{3}{5}\left(x + \frac{9}{10}\right)$

E  $\frac{3}{10}(x + 3)$

**Q2:** Factor  $6x + 24$ .

A  $6(6x + 4)$

B  $6(x + 4)$

C  $3(2x + 4)$

D  $3(2x + 24)$

E  $6(x + 24)$



Question Video

**Q3:** Factor  $-20 - 15x$ .

- A  $5(20 + 3x)$
- B  $-5(4 - 15x)$
- C  $-5(20 + 3x)$
- D  $5(4 + 3x)$
- E  $-5(4 + 3x)$



Question Video

**Q4:** Factor the expression  $3pq + p$  completely.

- A  $3p(q + 1)$
- B  $p(q + 1)$
- C  $3p(q + p)$
- D  $p(3q + 1)$
- E  $p(3q + p)$



Question Video

**Q5:** Factor  $2ab + 8a$  completely.

- A  $2a(b + 4)$
- B  $2a(2b + 8)$
- C  $2a(b + 8)$
- D  $2a(2b + 4)$
- E  $2(b + 4a)$



Question Video

**Q6:** Factor the expression  $3p(n^3 + 1) - n^3 - 1$  completely.

A  $(n^3 + 1)(3p + 1)$

B  $(n^3 - 1)(3p - 1)$

C  $n^3(3p - 1) + 3p - 1$

D  $(n^3 - 1)(3p + 1)$

E  $(3p - 1)(n^3 + 1)$



Question Video

**Q7:** Factor the expression  $6p^2 + 3p - 6pq$  completely.

A  $6p(p - q + 3)$

B  $3(2p^2 - 2pq + p)$

C  $3p(2p - 2q + 1)$

D  $3p(3p - 3q + 1)$

E  $p(6p - 6q + 3)$

**Q8:** Write  $\frac{2}{3}x + \frac{1}{6}$  in the form  $\frac{1}{6}(ax + b)$ .

A  $\frac{1}{6}\left(\frac{1}{4}x + \frac{1}{6}\right)$

B  $\frac{1}{6}(4x + 1)$

C  $\frac{1}{6}\left(\frac{1}{4}x + 1\right)$

D  $\frac{1}{6}\left(\frac{1}{9}x + 1\right)$

E  $\frac{1}{6}\left(4x + \frac{1}{6}\right)$

**Q9:** Factor  $15e + 15f$  completely.

A  $15e(e + f)$

B  $15e(e + 15f)$

C  $15(e + f)$

D  $15(15e + f)$

E  $15(e + 15f)$

**Q10:** Factor  $8x + 40y$  completely.

A  $4(2x + 40y)$

B  $8(x + 5y)$

C  $8(8x + 5y)$

D  $8(x + 40y)$

E  $4(x + 40y)$



Question Video

**Q11:** Factor  $x^3 + 36x$  completely.

A  $(x^2 + 6i)(x - 6i)$

B  $x(x + 6)(x - 6)$

C  $(x^2 + 6)(x - 6)$

D  $(x + 6i)(x - 6i)$

E  $x(x + 6i)(x - 6i)$

**Q12:** Factor the expression  $4bc + 2bd$  completely.

A  $2(2bc + bd)$

B  $b(4c + 2d)$

C  $2b(c + d)$

D  $2b(2c + d)$

E  $2bc(2 + d)$



Question Video

**Q13:** Factor the expression  $2(p - 1) + x(p - 1)$  completely.

A  $p(x - 1)$

B  $(p - 1)(x + 1)$

C  $(p - 1)(x + 2)$

D  $(p - 2)(x - 1)$

E  $(p - 1)(2x + 2)$

**Q14:** Expand  $-3x(4y - 7x)$ .

A  $12xy + 21x^2$

B  $-12y + 21x$

C  $-12xy - 21x$

D  $-12xy + 21x^2$

E  $12xy - 21x^2$



Question Video

**Q15:** Expand  $\frac{4}{7} \left( \frac{3}{4} + \frac{8}{9}x \right)$ .

A  $\frac{3}{7} + \frac{32}{63}x$

B  $\frac{83}{63}x$

C  $\frac{3}{4} + \frac{32}{63}x$

D  $\frac{3}{7} + \frac{8}{9}x$

E  $\frac{59}{63}x$



Question Video

**Q16:** Which of the following expressions is equivalent to  $2(4x - 2)$ ?

A  $4x$

B  $8x - 4$

C  $8x + 4$

D  $8x + 2$

E  $8x - 2$

**Q17:** Expand  $-7(8 - 12x)$ .

A  $-56 - 84x$

B  $-56 + 84x$

C  $56 - 84x$

D  $56 + 12x$

E  $-56 - 12x$



Question Video

**Q18:** Which of the following expressions is equivalent to  $4(3x + 2)$ ?

A  $12x + 8$

B  $20x$

C  $14x$

D  $3x + 8$

E  $12x + 2$



Question Video

**Q19:** Which of the following expressions is equivalent to  $-11(3 + 12x)$ ?

A  $-33 + 132x$

B  $-33 + 11x$

C  $33 + 132x$

D  $-33 - 132x$

E  $-33 - 11x$



Question Video



**Q20:** Which of the following expressions is equivalent to  $-9(5 - 6x)$ ?

A  $-45 - 6x$

B  $-45 - 54x$

C  $45 - 54x$

D  $-45 + 6x$

E  $-45 + 54x$



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**Q21:** Expand  $10(3 + 5b)$ .

A  $13 + 50b$

B  $30 + 50b$

C  $13 + 5b$

D  $30 + 5b$

E  $3 + 50b$



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**Q22:** Expand  $4(3 + 9x)$ .

A  $21x$

B  $12 + 9x$

C  $12 + 4x$

D  $48x$

E  $12 + 36x$



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**Q23:** Expand  $-11(5 + 7x)$ .

A  $55 + 77x$

B  $-55 + 77x$

C  $-55 - 7x$

D  $-55 - 77x$

E  $55 + 7x$



Question Video

**Q24:** Expand  $\frac{2}{3}\left(\frac{4}{5}x - \frac{3}{10}\right)$ .

A  $\frac{8}{15}x + \frac{3}{10}$

B  $\frac{8}{15}x - \frac{1}{5}$

C  $\frac{4}{5}x - \frac{1}{5}$

D  $\frac{8}{15}x - \frac{3}{10}$

E  $\frac{8}{15}x + \frac{1}{5}$



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**Q25:** Expand  $12(3x + 8)$ .

A  $12x + 96$

B  $36x + 8$

C  $36x + 96$

D  $44x$

E  $132x$



Question Video