

Are you ready to start ME15?

Self-Assessment Test

July 10, 2025

Calculators are not allowed.

1. Expand and simplify the following

(a) $9(3x + 7)$.

(b) $7a - 5b + 3(6a + b)$.

(c) $a - (-7a - 3)$.

(d) $3(5 - 2r) - 2(-3r + 1)$.

2. (a) Convert 0.6144 to a fraction in simplest form.

(b) Convert $\frac{17}{40}$ to a decimal.

(c) 17 is what percent of 20?

(d) What is $\frac{9}{5} - \frac{4}{3}$

(e) What is $\frac{3/6}{2/5}$ in simplest form?

3. Solve each of the following.

(a) $3r - 4 = 16 - 7r$

(b) $\frac{2x - 3}{5} = \frac{4 - 3x}{7}$

(c) $2 - \frac{t}{4} = 3 \left(5 - \frac{t}{6} \right)$

4. Express each of the following as a power of 2:

(a) $2^7 \cdot 2^6$

(b) $\frac{2^{13}}{2^5}$

(c) $(2^4)^3$

(d) $2^3 \cdot \left(\frac{2^7}{2^2} \right)^3$

5. (a) The ratio of boys to girls at a summer camp is 4 to 5. If the total number of students at the camp is 108, then how many boys are at the camp?

(b) The ratio of teachers to students in a particular school is 1 to 11. The ratio of female students to the total number of students is 4 to 9. If there are 396 female students, then how many teachers are there?

- (c) A train is traveling 1 mile every 75 seconds. If the train continues at this rate, then how far will it travel in two hours?

6. Fully simplify the following:

(a) $\sqrt{81}$

(b) $\sqrt{144}$

(c) $\sqrt{1\frac{7}{9}}$

(d) $\frac{\sqrt{540}}{\sqrt{3}}$