

- 1. In a soccer team, there are 11 people. How many ways can you select a) a captain and a vicecaptain; b) two forwards?
- 2. How many different five-digit numbers, not containing identical digits, can be written using the digits 1, 2, 3, 4, 5?
- 3. How many different five-digit numbers, not containing identical digits, can be written using the digits 1, 2, 3, 4, 5, such that:
 - a. The last digit is 3?
 - b. The first digit is 2, and the last digit is 4?
- 4. Show that (57! + 58!) is divisible by 59. (Hint: find common factors.)
- 5. Evaluate:

a.
$$5^{-1} + 10^{-1}$$

b.
$$(0.5+1)^{-2}$$
;

a.
$$5^{-1} + 10^{-1}$$
; b. $(0.5 + 1)^{-2}$; c. $(2^{-4} + 4^{-2})^{-1}$; d. $(2 - 2^{-1})^{-1}$; e. $3^{-1} + 9^{-1}$; f. $(0.2 + 1)^{-1}$; g. $(4^{-2} - 4^{-3})^{-1}$; h. $(3 - 3^{-1})^{-2}$;

$$d. (2-2^{-1})^{-1}$$

$$e. 3^{-1} + 9^{-1}$$
;

$$f. (0.2 + 1)^{-1}$$
;

$$g. (4^{-2} - 4^{-3})^{-1};$$

$$h. (3-3^{-1})^{-2}$$

 $\cdot B$

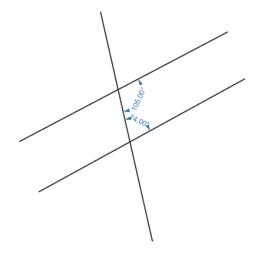
6. Do the points A, O, and C lie on the same line?





a. Angle $\angle AOB = 137^{\circ}$ Angle $\angle BOC = 43^{\circ}$

b. Angle $\angle AOB = 65^{\circ}$ Angle $\angle BOC = 116^{\circ}$ 7. Are these two lines parallel?



8. . Simplify the following expressions (combine like terms).

a.
$$2xy + 0.5xy + (xy): 6 + (xy): 3 + xy$$
;

$$b. \ a + 2b + 2a + 4b + 3a + 6b$$

c.
$$8\frac{3}{11}x + 0.66y + 5\frac{2}{11}x + 2.34y$$

d. $17x - (3y + z) + (5z - x) - (2x - 8y);$

d.
$$17x - (3y + z) + (5z - x) - (2x - 8y)$$
;

e.
$$c - (c - d) - \left(c - \frac{d}{2}\right) - \left(c - \frac{d}{4}\right) - \left(c - \frac{d}{8}\right) - \left(c - \frac{d}{16}\right) + \frac{d}{16}$$