

Maths Mock Test

27 Oct 2020 at 15:30

1.

i) $x^2 + 8x + 15 = 0$

$$(x+3)(x+5) = 0$$

$$x^2 + 5x + 3x + 15 = 0$$

 $8x$

$$x+3=0$$

$$x+5=0$$

$$x = -3$$

$$x = -5$$

iv) $x^2 - 6x + 8 = 0$

$$(x-2)(x-4)$$

$$x^2 - 4x - 2x + 8 = 0$$

 $-6x$

ii) $x^2 - 22x + 25 = 0$

$$x^2 = 22x$$

$$x = 15$$

iii) $x^2 + 11x + 30 = 0$

$$(x+5)(x+6) = 0$$

$$x^2 + 6x + 5x + 30 = 0$$

 $11x$

$$x+5=0$$

$$x+6=0$$

$$x = -5$$

$$x = -6$$

v) $2x^2 + 9x + 7 = 0$

$$(2x+7)(x+1)$$

$$2x^2 + 2x + 7x + 7 = 0$$

 $9x$

iv) $x^2 - 6x + 8 = 0$

$(x-2)(x-4)$

$\frac{x^2 - 4x - 2x + 8}{-6x} = 0$

$x-2=0$ $x-4=0$

$x=2$

$x=4$

v) $2x^2 + 9x + 7 = 0$

$(2x+7)(x+1)$

$\frac{2x^2 + 2x + 7x + 7}{9x} = 0$

$2x+7=0$ $x+1=0$

$2x = -7$

$x = -3.5$

$x = -1$

2. $12x^2 + 5x = 7$

2.dp

$12x^2 + 5x - 7 = 0$

$\frac{-(-5) \pm \sqrt{(-5)^2 - 4(12)(-7)}}{2(12)}$

$x = 0.58$

$x = -1$

3. $5x + 2y = 22$ ①

$4x + 3y = 14$ ②

$15x + 6y = 66$ ③

$8x + 6y = 38$ ④

$7x = 28$

$x = 4$

$5(4) + 2y = 22$

$20 + 2y = 22$

$2y = 22 - 20$

$2y = 2$

$y = 1$

$$x + = 0.58$$

$$x - = -1$$

$$x = 4$$

into ①

$$y = 1$$

$$4. i) x^8 \times x \times x^4 = x^{18}$$

$$ii) (2x^3)^3 = 8x^9$$

$$iii) \frac{x^{12} \times x^8}{x^4} = x^{16}$$

$$iv) 5x^2 \times 3x^4 = 15x^6$$

$$v) \frac{10x^5}{2x^2} = 5x^3$$

5.

$$2(x^2 + y^2) + x^2(x - y) + 3xy - x^3$$

$$2x^2 + 2y^2 + x^3 - x^2y + 3xy - x^3$$

$$2x^2 + 2y^2 - x^2y + 3xy$$

$$i) 5(2x + 1) = 4(3x + 2)$$

$$ii) 12x + 5 = 4x - 1$$

$$iii) \frac{(4x - 1)}{3} = \frac{(5x + 2)}{2}$$

$$10x + 5 = 12x + 8$$

$$12x - 4x = -1 - 5$$

$$-8 + 5 = 12x - 10x$$

$$8x = -6$$

$$3x^2 = 6$$

$$6(10x - 1)$$

$$6(15x + 1)$$

$$-8 + 5 = 12x - 10x$$

$$-\frac{3}{2} = \frac{2x}{2}$$

$$x = -\frac{3}{2}$$

$$\frac{8x}{8} = -\frac{6}{8}$$

$$x = -\frac{6}{8}$$

$$3 \times 2 = 6$$

$$\frac{6(4x-1)}{3} = \frac{6(5x+2)}{2}$$

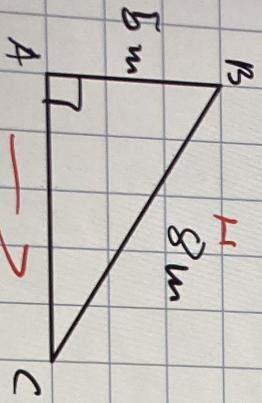
$$2(4x-1) = 3(5x+2)$$

$$8x - 2 = 15x + 6$$

$$-6 - 2 = 15x - 8x$$

$$-\frac{8}{7} = \frac{7x}{7}$$

$$x = -\frac{8}{7}$$

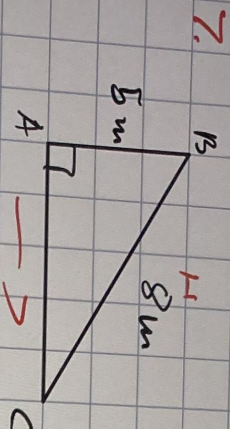


i) Angle B

ii) Angle C

iii) Length AC

2 d.p.



7.

$$i) \cos x = \frac{5}{8}$$

$$x \cos^{-1} = \frac{5}{8}$$

$$x = 51.32^\circ$$

i) Angle B

2 d.p.

ii) Angle C

iii) Length AC

$$ii) 180^\circ - 90^\circ - 51.32^\circ =$$

$$38.68^\circ$$

$$iii) (8)^2 = (5)^2 + AC^2$$

$$64 = 25 + AC^2$$

$$64 - 25 = AC^2$$

$$39 = AC^2$$

$$\sqrt{39} = AC$$

$$AC = 6.24 \text{ m}$$