Name:

Exam Style Questions

Changing the Subject Advanced

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

Video 8

1. Make w the subject of the formula $4(g - w) = 5w - 3$

$4g - 4w = 5w - 3$

$+3 \quad +3$

$4g - 4w + 3 = 5w$

$+4w \quad +4w$

$4g + 3 = 9w$

$\div 9 \quad \div 9$

$\frac{4g+3}{9} = w$

There may be other correct rearrangements.

w = $\frac{4g+3}{9}$

(3)

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2. $4(2a + p) = c + p + a$

Express a in terms of c and p.

$8a + 4p = c + p + a$

$-4p \quad -4p$

$8a = c - 3p + a$

$-a \quad -a$

$7a = c - 3p$

$\div 7 \quad \div 7$

$a = \frac{c-3p}{7}$

There may be other correct rearrangements.

a = $\frac{c-3p}{7}$

(3)

3. Make a the subject of $14a + 6w = ac + 8w$

$$-ac \quad -ac$$
$$14a + 6w - ac = 8w$$
$$-6w \quad -6w$$
$$14a - ac = 2w$$
$$a(14 - c) = 2w$$
$$a = \frac{2w}{14 - c}$$

There may be other correct rearrangements.

a = $\frac{2w}{14-c}$

(3)

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4. Make x the subject of

$$y = \frac{x + 3}{x - 8}$$

$$y(x - 8) = x + 3$$
$$xy - 8y = x + 3$$
$$+8y \quad +8y$$
$$xy = x + 3 + 8y$$
$$-x \quad -x$$
$$xy - x = 3 + 8y$$
$$x(y - 1) = 3 + 8y$$
$$x = \frac{3 + 8y}{y - 1}$$

There may be other correct rearrangements.

x = $\frac{3+8y}{y-1}$

(4)

5. Rearrange $y + 3 = x(y + 2)$ to make y the subject of the formula.

$y+3=xy+2x$

$-xy \quad -xy$

$y+3-xy=2x$

$-3 \quad\quad -3$

$y-xy=2x-3$

$y(1-x)=2x-3$

$y=\frac{2x-3}{1-x}$

There may be other correct rearrangements.

y = $\frac{2x-3}{1-x}$

(4)

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6. Make a the subject of the formula.

$$\frac{1}{a}-\frac{1}{b}=\frac{1}{c}$$

$\frac{b}{ab}-\frac{a}{ab}=\frac{1}{c}$

There may be other correct rearrangements.

$\frac{b-a}{ab}=\frac{1}{c}$

$c(b-a)=ab$

$bc-ac=ab$

$bc=ab+ac$

$bc=a(b+c)$

$\frac{bc}{b+c}=a$

a = $\frac{bc}{b+c}$

(3)

7. Make a the subject of the formula

$$s = ut + \tfrac{1}{2}at^2$$

$-ut \quad -ut$

$s - ut = \tfrac{1}{2}at^2$

$\times 2 \qquad \times 2$

$2s - 2ut = at^2$

$\div t^2 \qquad \div t^2$

$$\frac{2s - 2ut}{t^2}$$

There may be other correct rearrangements.

$$\frac{2s - 2ut}{t^2}$$

a = ...

(3)

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8. Make w the subject of the formula

$$g = \frac{w}{w - 5}$$

$g(w-5) = w$

$gw - 5g = w$

$gw = w + 5g$

$gw - w = 5g$

$w(g-1) = 5g$

$$w = \frac{5g}{g-1}$$

There may be other correct rearrangements.

$$\frac{5g}{g-1}$$

w = ...

(3)

9. Make y the subject of the formula $c = w - 4ay^3$

$c + 4ay^3 = w$

$4ay^3 = w - c$

$y^3 = \frac{w-c}{4a}$

$y = \sqrt[3]{\frac{w-c}{4a}}$

There may be other correct rearrangements.

y = $\sqrt[3]{\frac{w-c}{4a}}$

(3)

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10. Make x the subject of the formula

$$P = 4x + \frac{\pi x}{5}$$

$5P = 20x + \pi x$

$5P = x(20 + \pi)$

$\frac{5P}{20+\pi} = x$

There may be other correct rearrangements.

x = ...

(3)

11. Make v the subject of the formula.

$$s = \tfrac{1}{2}(u + v)\,t$$

$2s = (u+v)t$

$2s = ut + vt$

$2s - ut = vt$

$\frac{2s-ut}{t} = v$

There may be other correct rearrangements.

v = $\frac{2s-ut}{t}$

(3)

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12. Make p the subject of the formula $p - 2 = \pi(y - 3p)$

$p - 2 = \pi y - 3\pi p$

$p + 3\pi p = \pi y + 2$

$p(1 + 3\pi) = \pi y + 2$

$p = \frac{\pi y + 2}{1 + 3\pi}$

There may be other correct rearrangements.

p = $\frac{\pi y + 2}{1 + 3\pi}$

(4)

13. Make m the subject of the formula $E = mgh + \frac{1}{4}mv^2$

$4E = 4mgh + mv^2$

$4E = m(4gh + v^2)$

$\frac{4E}{4gh + v^2} = m$

There may be other correct rearrangements.

$m = \frac{4E}{4gh + v^2}$

(3)