# Revision & Prac e Worksheet 16

## A Algebra: Solving linear inequations

Skill 3.7

Solve these inequations and show the solution using a number line:

**1** $x+1 \leq -4$ **2** $3x > 12$ **3** $6x+2 \geq 3x+8$

**4** $5-2x<7$ **5** $\dfrac{-5x+1}{2} \geq -2$ **6** $2(x-3)<4$

## B Algebra: Working with literal equations

Skill 3.8

**1** Make $a$ the subject:

**(a)** $S=\dfrac{a}{2}(n+L)$ **(b)** $W=4ab^2$ **(c)** $C=7a^2b$ **(d)** $A=\dfrac{1}{2}(a+b)h$

**(e)** $P=\dfrac{\pi d}{a}$ **(f)** $V^2=2ga$ **(g)** $P=t(a+d)^2$ **(h)** $Ws=50ad$

**(i)** $L=\dfrac{WH}{8a}$ **(j)** $R=a+\dfrac{V^2}{b}$ **(k)** $d=\dfrac{a+2}{p}$ **(l)** $S=\dfrac{u}{2}(a+L)$

**2** The formula to find the volume of a cylinder with radius ($r$ cm) and height ($h$ cm) is given by: $V=\pi r^2h$. Make $r$ the subject and find the radius measure for these cylinders where:

**(a)** $V=20$ cm$^3$, $h=4$ cm **(b)** $V=320$ cm$^3$, $h=6.3$ cm **(c)** $V=15$ cm$^3$, $h=8$ cm

**(d)** $V=180$ cm$^3$, $h=4$ cm **(e)** $V=32$ cm$^3$, $h=9$ cm **(f)** $V=260$ cm$^3$, $h=1.2$ cm

## C Indices: Negative powers

Skill 4.6

**1** Express with positive powers:

**(a)** $2^{-4}a^4b^{-3}$ **(b)** $3^2a^{-2}b$ **(c)** $4^{-2}a^{-4}b^3$ **(d)** $2^{-4}a^2b^{-3}$

**(e)** $3^{-2}a^4b^{-3}$ **(f)** $5^{-1}ab^{-4}$ **(g)** $8^2x^{-2}y^3$ **(h)** $7^{-2}xy^3$

**(i)** $4^{-1}x^{-2}y^{-3}$ **(j)** $6^{-2}b^{-3}$

**2** Expand the brackets:

**(a)** $\left(3a^{-2}b^3\right)^{-1}$ **(b)** $\left(4a^{-4}b\right)^{-2}$ **(c)** $\left(2^{-3}a^4b\right)^{-3}$ **(d)** $\left(5^2a^{-3}\right)^{-1}$

**(e)** $\left(\dfrac{a^{-4}b^3}{2c^2}\right)^{-1}$ **(f)** $\left(\dfrac{b^{-4}}{2^3c^8}\right)^{-2}$ **(g)** $\left(\dfrac{4y^{-3}}{x^2}\right)^{-2}$ **(h)** $\left(\dfrac{3^2a^{-2}}{b^3}\right)^{-3}$

**(i)** $-\left(2a^4b^3\right)^{-2}$ **(j)** $\left(5^2a^4b^2\right)^{-1}$

## D Cartesian plane: Sketching parabolas

Skill 5.9

Sketch these parabolas by finding the $x$ and $y$ intercepts as well as completing the square to find the turning point:

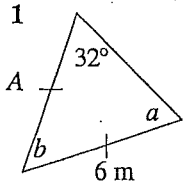
**1** $y=x^2-2x-3$ **2** $y=x^2-2x-15$

## E Geometry: Angles in triangles and quadrilaterals

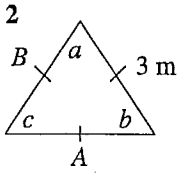
Skill 6.2

Find the side lengths in the following:

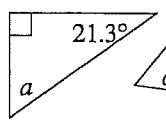
**1**



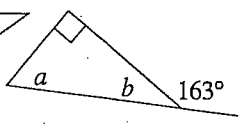

**2**



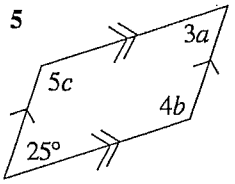

**3**



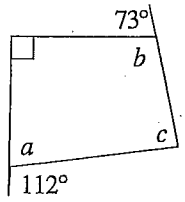

**4**



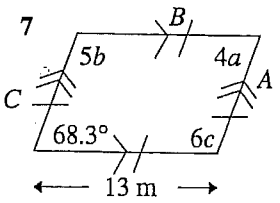

**5**



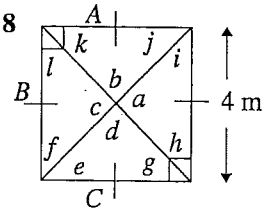

**6**




**7**

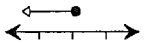



**8**

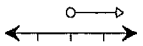


## Worksheet 16

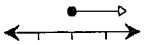
**A** **1** $x \leq -5$



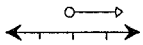

**2** $x > 4$



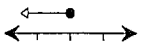

**3** $x \geq 2$



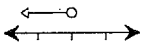

**4** $x > -1$




**5** $x \leq 1$




**6** $x < 5$




**B** **1** **(a)** $a = \dfrac{2s}{(l+l)}$ **(b)** $a = \dfrac{W}{4b^2}$

**(c)** $a = \sqrt{\dfrac{c}{7b}}$ **(d)** $a = \dfrac{2A}{h} - b$

**(e)** $a = \dfrac{\pi d}{P}$ **(f)** $a = \dfrac{V^2}{2g}$

**(g)** $a = \sqrt{\dfrac{P}{t}} - d$ **(h)** $a = \dfrac{Ws}{50d}$

**(i)** $a = \dfrac{WH}{8L}$ **(j)** $a = R - \dfrac{V^2}{B}$

**(k)** $a = dp - 2$ **(l)** $a = \dfrac{2s}{u} - L$

**2** $r = \sqrt{\dfrac{V}{\pi h}}$

**(a)** 1.26 **(b)** 4.02 **(c)** 0.77

**(d)** 3.78 **(e)** 1.06 **(f)** 8.30

**C** **1** **(a)** $\dfrac{a^4}{16b^3}$ **(b)** $\dfrac{9b}{a^2}$ **(c)** $\dfrac{b^3}{16a^4}$

**(d)** $\dfrac{a^2}{16b^3}$ **(e)** $\dfrac{a^4}{9b^3}$ **(f)** $\dfrac{a}{5b^4}$

**(g)** $\dfrac{64y^3}{x^2}$ **(h)** $\dfrac{x}{49y^3}$ **(i)** $\dfrac{1}{4x^2y^3}$

**(j)** $\dfrac{1}{36b^3}$

**2** **(a)** $\dfrac{a^2}{3b^3}$ **(b)** $\dfrac{a^8}{16b^2}$ **(c)** $\dfrac{64}{a^{12}b^3}$

**(d)** $\dfrac{a^3}{25}$ **(e)** $\dfrac{2a^4c^2}{b^3}$ **(f)** $64b^8c^{16}$

**(g)** $\dfrac{x^4y^6}{16}$ **(h)** $\dfrac{a^6b^9}{729}$ **(i)** $-\dfrac{1}{4a^8b^6}$

**(j)** $\dfrac{1}{25a^4b^2}$

**D** **1** $x$ int $= 3, -1$

$y$ int $= -3$

T.P. $= (1, -4)$