Name: _____   Date: _____

1. Which of the expressions below is equivalent to: $\dfrac{2^2 \times 2^6}{2^3}$?

A) 2^5

C) 2^9

B) 2^7

D) 2^{11}

2. If $x = -2$, which of the following expressions represent a negative number?

A) $-x^3$

C) $(-x)^2$

B) $-x^2$

D) $-5x$

3. Which of the following expressions is equivalent to $\dfrac{3^7 \times 5^{-4}}{3 \times 5^{-8}}$?

A) $3^6 \times 5^4$

C) $3^7 \times 5^4$

B) $3^6 \times 5^{-12}$

D) $\dfrac{15^3}{15^{-7}}$

4. Which of the following expressions is NOT equivalent to $\dfrac{7^5 \times 5^{-5}}{7^{-3} \times 5^2}$?

A) $\dfrac{5^2 \times 7^6}{5^9 \times 7^{-2}}$

C) $7^2 \times 5^{-3}$

B) $\dfrac{7^2 \times 5}{7^{-6} \times 5^8}$

D) $\dfrac{7^8}{5^7}$

5. Which of the following expressions is equivalent to $\dfrac{3^2 \times 2^3 \times 4^0}{3 \times 2^8 \times 3}$?

A) $\dfrac{4}{2^5}$

C) $\dfrac{24^6}{18^{11}}$

B) $\dfrac{1}{2^5}$

D) $2^5 \times 4$

6. Which of the following expressions is equivalent to $\dfrac{2^3 \times 3^5 \times 2^{-1} \times 3^2}{2^4}$?
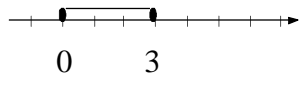
A) $\dfrac{6^9}{2^4}$
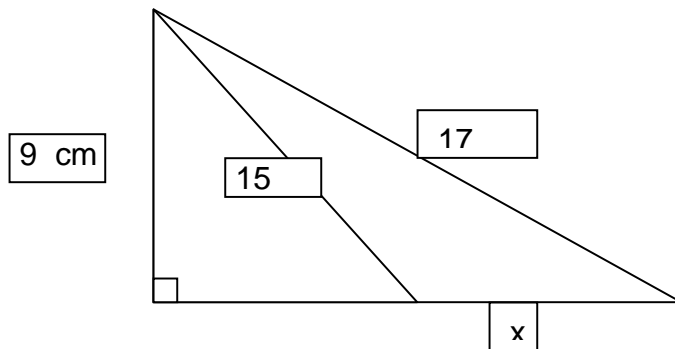
C) $\dfrac{3^7}{2^2}$

B) $\dfrac{9^7}{2^2}$

D) 18^5

7. Fill the table

	Set Builder notation	Interval notation	Number Line
a	{ $x \in \mathfrak{R}$ / $x \geq -2$ }		
b		[12,16[	
c			0 3
d	{ $x \in$ N / $4 \leq x \leq 8$	Does not apply	

b) Explain why in part d) the Interval notation does not apply.

8. Determine the value of x in the following figure. Round your answer to the nearest tenth.

9 cm

17

15

x

9. Maria bought a new poster to put up in her room. The dimensions of the poster are shown in the following diagram:

A

50 cm

30 cm

C

E

D

B

90 cm

$m\ \overline{AE} = 30$ cm

$m\ \overline{AD} = 50$ cm

$m\ \overline{BD} = 90$ cm
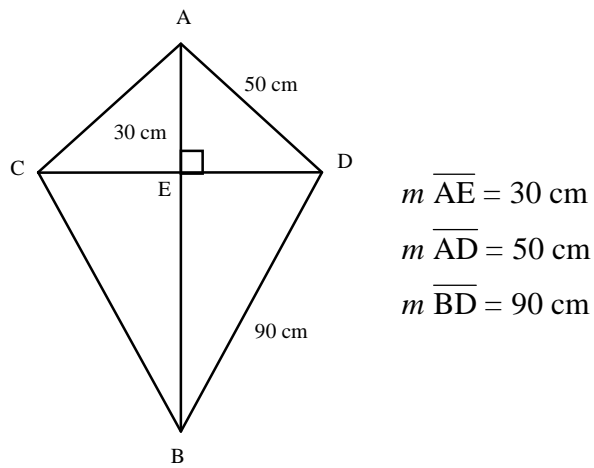
The only free space she has left on her wall is 1m x 1m square. Will she be able put the poster up?

10. A square is inscribed inside a circle with diameter 24 cm.

   What irrational number represents side a?
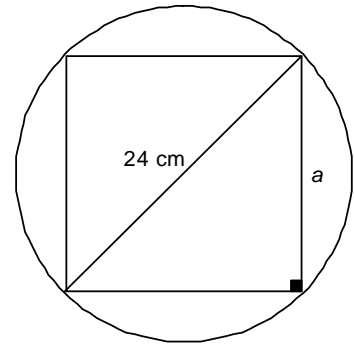
11. Marie and her brother Alex take different routes to get to school. Marie walks 220 m west along Hillside Road, turns right on Simcoe Avenue and then walks 160 m. Alex walks east along Hillside Road, turns left on Elm Street and then walks 340 m.

Alex's route is longer than Marie's. How many metres longer is it? Show all your work.
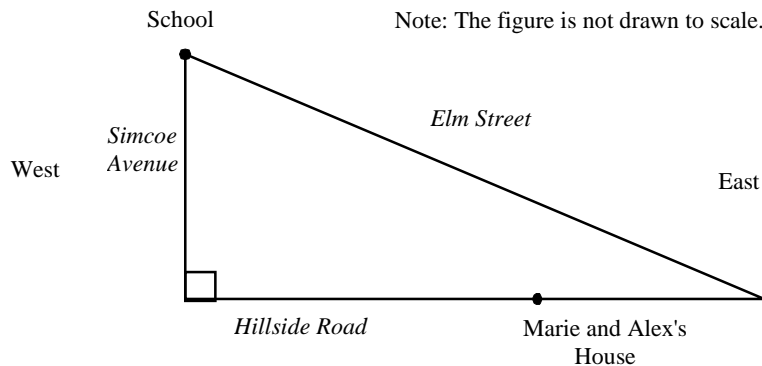
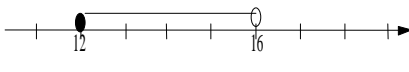12. a) $\dfrac{8b^3}{32b}$ b) $\dfrac{24a^6}{4a^2}$ c) $(36a^4x)(-4a^3x^3)$ d) $729^{-1/6}$
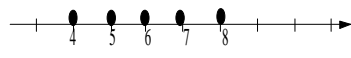
Solutions to Chapter 1 Pre-test Review

1. A   2. B   3. A   4. C   5. B   6. C

7.a) [-2,∞[

  b) { $x \in \mathfrak{R}$ / 12 ≤ x< 16}

  c) { $x \in \mathfrak{R}$ / 0 ≤ x ≤ 3}   [0,3]

  d)   Interval notation is only used for Real numbers

8. x = 2.4cm

9. $\overline{ED} = 40CM$; $\overline{EB} = 80.62$; $\overline{AB} = 110.62$; $\overline{CD} = 80$

     Therefore while the width would fit, the length will not unless she puts the poster at an angle diagonally.

10. $a^2 + a^2 = 24^2$
         $2a^2 = 576$
         $a^2 = 288$
         $a = \sqrt{288}$

     Answer: The irrational number is $\sqrt{288}$ cm.

11. Length of Hillside Road between Simcoe Avenue and Elm Street

$$\left(m \ \overline{AC}\right)^2 = \left(m \ \overline{BC}\right)^2 + \left(m \ \overline{AB}\right)^2$$
$$\left(m \ \overline{BC}\right)^2 = \left(m \ \overline{AC}\right)^2 - \left(m \ \overline{AB}\right)^2$$
$$m \ \overline{BC} = \sqrt{\left(m \ \overline{AC}\right)^2 - \left(m \ \overline{AB}\right)^2}$$
$$m \ \overline{BC} = \sqrt{\left(340\right)^2 - \left(160\right)^2}$$
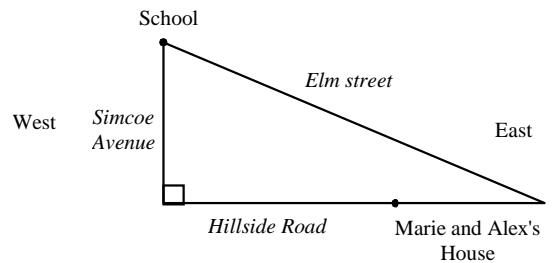$$m \ \overline{BC} = 300$$

Distance walked by Alex on Hillside Road: 300 – 220 = 80
Total distance walked by Alex: 80 + 340 = 420

Total distance walked by Marie: 160 + 220 = 380

Difference between these two distances: 420 – 380 = 40

Answer   Alex's route is 40 m longer than Marie's.

12. a) $\dfrac{b^2}{4}$ b) $6a^4$ c) $-144a^7x^4$ d) 1/3