Flashback #7

1. Estimate the value of each square root

$$\sqrt{3.8} \qquad \sqrt{\dfrac{7}{20}} \to \dfrac{\sqrt{9}}{\sqrt{16}} \qquad \sqrt{\dfrac{144}{25}} \qquad \sqrt{0.25}$$

$\sqrt{}$ $\sqrt{4}$

≈ 1.9

$\dfrac{9}{16} \approx \dfrac{25}{\sqrt{16}}$ $\approx \dfrac{3}{4}$

$= \dfrac{12}{5}$

$\sqrt{\dfrac{25}{100}} \quad \dfrac{\sqrt{25}}{\sqrt{100}}$

$= \dfrac{5}{10} = \dfrac{1}{2}$

2. Determine the **perimeter** of a rectangle with sides of (2x + 7) and (3x – 10).

2x+7
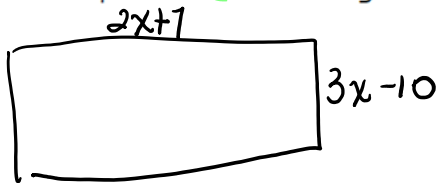
3x-10

$P = S_1 + S_2 + S_3 + S_4$

$P = 2(2x+7) + 2(3x-10)$

$P = 4x + 14 + 6x - 20$

$P = 10x - 6$

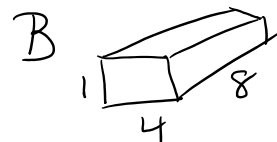3. Order the rational numbers from smallest to largest (no calculator)

$$\sqrt{\dfrac{16}{25}} \qquad \dfrac{-2}{-5} \qquad \dfrac{10}{-3} \qquad 0.6$$

$\dfrac{4}{5}$ $\qquad$ $\dfrac{2}{5}$ $\qquad$ $-\dfrac{10}{3}$ $\qquad$ $\dfrac{6}{10} = \dfrac{3}{5}$

0.8 $\qquad\qquad\qquad$ $-3\dfrac{1}{3}$

$-\dfrac{10}{3} \qquad \dfrac{-2}{-5} \qquad 0.6 \qquad \sqrt{\dfrac{16}{25}}$

4. Which rectangular prism has the **larger surface area**, Block A which measures 2 cm by 3 cm by 5 cm or block B which measures 1 cm by 4 cm by 8 cm? By how much?

A

2, 3, 5

B

1, 4, 8
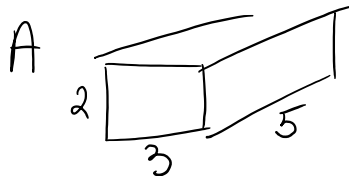
$SA = 2lw + 2wh + 2lh$

$= 2(2 \cdot 3) + 2(3 \cdot 5) + 2(2 \cdot 5)$

$= 12 + 30 + 20$

$SA = 62 \text{ cm}^2$

$SA = 2lw + 2wh + 2lh$

$= 2(1 \cdot 4) + 2(4 \cdot 8) + 2(1 \cdot 8)$

$= 8 + 64 + 16$

$SA = 88 \text{ cm}^2$

Block B is larger by 26cm²

5. Identify two ==rational numbers between== 0.25 and 0.26.

0.25   0.26

0.251 0.252   many possibilities

or $\frac{25}{100}$ $\frac{26}{100}$

) equivalent fractions

$\frac{250}{1000}$ $\frac{260}{1000}$

$\frac{251}{1000}$ $\frac{252}{1000}$ .... up to $\frac{259}{1000}$

6. Evaluate (no calculator) 4^3 2^5 -1^6 $(-2)^4$

4^3
$4 \cdot 4 \cdot 4$
64

2^5
$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$
32

-1^6
$-1 \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot 1$
-1

$(-2)^4$
$(-2)(-2)(-2)(-2)$
$+16$

7. Simplify: $(-4)^6 \div (-4)^8 \cdot (-4)^{12}$

division law → subtract

$(-4)^{-2} \cdot (-4)^{12}$ mult. law → add

$(-4)^{10}$

8. Solve: $\frac{2}{3}x + 4 = \frac{-x}{4} + 10$

(×12 over each term)

$8x + 48 = -3x + 120$
$+3x \qquad\qquad +3x$
$11x + 48 = 120$
$\qquad -48 \quad -48$
$\frac{11x}{11} = \frac{72}{11}$
$x = \frac{72}{11}$

Check

$\frac{2}{3}\left(\frac{\overset{24}{72}}{11}\right) + 4 \quad\bigg|\quad -\frac{72}{11}/4 + 10$

$\frac{48}{11} + \frac{44}{11} \quad\bigg|\quad -\frac{18}{11} + \frac{110}{11}$

$\frac{92}{11} \qquad\bigg|\qquad \frac{92}{11}$ ✓

✓ actual

9. A plastic mini surfboard has dimensions of 17.5 cm by 12.5 cm. Determine the

9. A plastic mini surfboard has dimensions of 17.5 cm by 12.5 cm. Determine the dimensions of the enlargement if a scale factor of 7/2 is used.

$$\text{actual} \cdot \text{SF} = \text{image}$$
$$17.5 \cdot \frac{7}{2} = 61.25 \text{ cm}$$
$$12.5 \cdot \frac{7}{2} = 43.75 \text{ cm}$$

10. Is the following question biased? If yes, what factor is affecting the data collection?
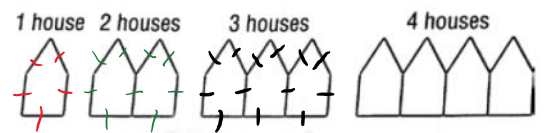
"Do you think it is a good idea to use DNA tests to convict a violent criminal?"

How could you rewrite the question to eliminate the bias?

Word choice : violent

Should DNA tests be used in court cases?

11. Write an equation to model the following pattern created with toothpicks:

1 house   2 houses   3 houses   4 houses

# houses	toothpicks
1	5
2	9
3	13

$+4$
$+4$

$\longrightarrow$ $4x + 1 = y$

or
$4h + 1 = t$
↑ houses   ↖ toothpicks

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