

CHAPTER 1 PRE-TEST

NAME: key

Pre-Calculus 11 Block C

Simplify the expressions

1. $|-2-3 \times 5|$ (1 mark)

$$|-2-15|$$

$$|-17| = 17$$

$$17$$

2. $|2-3 \times 4| - |-1.5|$ (1 mark)

$$|2-12| - |-1.5|$$

$$10 - 1.5$$

$$8.5$$

$$8.5$$

Simplify the Radical expressions.

3. $2\sqrt{63}$ (1 mark)

$$2 \cdot 3\sqrt{7}$$

$$6\sqrt{7}$$

$$6\sqrt{7}$$

4. $\sqrt{120xy^3}$ (1 mark)

$$2y\sqrt{30xy}$$

$$2y\sqrt{30xy}$$

Write each mixed radical as an entire radical.

5. $3a\sqrt{4ab}$ (1 mark)

$$\sqrt{36a^3b}$$

$$\sqrt{36a^3b}$$

6. $2xy\sqrt[3]{xy}$ (1 mark)

$$2\sqrt[3]{x^4y^4}$$

$$2\sqrt[3]{x^4y^4}$$

Perform the indicated operation and simplify.

7. $\sqrt{45} + \sqrt{80}$

(2 marks)

$$3\sqrt{5} + 4\sqrt{5}$$

$$7\sqrt{5}$$

$$7\sqrt{5}$$

8. $\sqrt{125} - \sqrt{5}$

(2 marks)

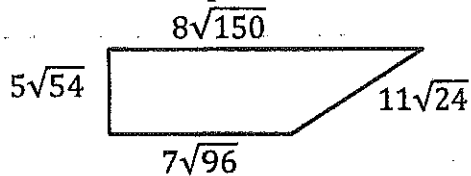
$$5\sqrt{5} - \sqrt{5}$$

$$4\sqrt{5}$$

$$4\sqrt{5}$$

9. Find the perimeter.

(2 marks)



$$8 \cdot 5\sqrt{6} + 5 \cdot 3\sqrt{6} + 7 \cdot 4\sqrt{6} + 11 \cdot 2\sqrt{6}$$

$$(40 + 15 + 28 + 22)\sqrt{6}$$

$$98\sqrt{6}$$

Perform the indicated operation and simplify.

10. $(4\sqrt{x} + \sqrt{3x})^2 (4\sqrt{x} + \sqrt{3x})$ (2 marks)

$$16x + 4\sqrt{3x^2} + 4\sqrt{3x^2} + 3x$$

$$19x + 8x\sqrt{3}$$

$$19x + 8x\sqrt{3}$$

11. $\sqrt{3a}(\sqrt{a} - \sqrt{15})$

(2 marks)

$$\sqrt{3a^2} - \sqrt{45a}$$

$$a\sqrt{3} - 3\sqrt{5a}$$

$$a\sqrt{3} - 3\sqrt{5a}$$

Rationalize the Denominator

12. $\frac{3}{\sqrt{5}}$ (1 mark)

$$\frac{3\sqrt{5}}{5}$$

$$\frac{3\sqrt{5}}{5}$$

13. $\frac{4xy}{\sqrt{5x}}$ (1 mark)

$$\frac{4xy\sqrt{5x}}{5x} = \frac{4y\sqrt{5x}}{5}$$

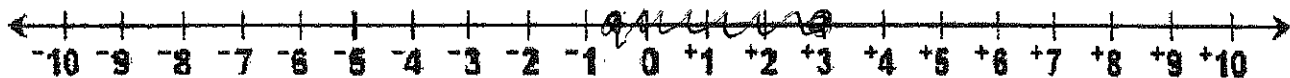
$$\frac{4y\sqrt{5x}}{5}$$

State the restriction for the radical equation. ALSO graph the restriction on the number line.

14. $\sqrt{3-x} + \sqrt{2x+1} = 2x+7$ (2 marks)

$$\begin{aligned} 3-x &\geq 0 & 2x+1 &\geq 0 \\ x &\leq 3 & x &\geq -\frac{1}{2} \end{aligned}$$

$$-\frac{1}{2} \leq x \leq 3$$



Solve the radical equations and state the restrictions. Do not forget to check your solutions and reject the erroneous solutions.

15. $\sqrt{x+1} = (x+1)^2$

Restrictions

$$x+1 \geq 0$$

$$x \geq -1$$

$$x+1 = (x+1)^2$$

$$x+1 = x^2 + 2x + 1$$

$$-x - 1$$

$$0 = x^2 + x$$

$$0 = x(x+1)$$

$$x=0 \quad x=-1$$

✓

✓

(2 marks)

$$x=0$$

$$x=-1$$

$$16. \sqrt{2x-1} = (\sqrt{x-4} + 2)^2$$

$$2x-1 = (\sqrt{x-4} + 2)(\sqrt{x-4} + 2)$$

$$2x-1 = x-4 + 2\sqrt{x-4} + 2\sqrt{x-4} + 4$$

$$(x-1)^2 = (4\sqrt{x-4})^2$$

$$x^2 - 2x + 1 = 16(x-4)$$

$$x^2 - 2x + 1 = 16x - 64$$

$$-16x + 64 - 16x + 64$$

$$x^2 - 18x + 65 = 0$$

$$(x-13)(x-5) = 0$$

$$\underline{x=13} \quad \underline{x=5}$$

(2 marks)

$$x=13$$

$$x=5$$

restrictions

$$2x-1 \geq 0$$

$$x-4 \geq 0$$

$$x \geq \frac{1}{2}$$

$$x \geq 4$$

End of Test