

State Test
2010 - 2011

11.
$$\text{mean} = \frac{-55.5 + 82.5 + 8 + \pi + 857.1 + \pi + 882}{7} = 254.34$$

$$\text{median} = 8$$

$$\text{mode} = \pi$$

$$\bar{X} = \frac{254.34 + 8 + \pi}{3} = 88.5$$

12.
$$(80)(5) - (10)(9) = 310$$

13.
$$\sqrt[3]{5288 \text{ ft}^3} (12) = 17.421965... \text{ inches}$$

Use conversion key to convert to cm
$$(531 \text{ cm})^3 = 1.50 \times 10^8$$

24.
$$A = \frac{bh}{2}$$
$$= \frac{\left(\frac{686}{2}\right)\left(\frac{686}{2}\sqrt{3}\right)}{2}$$
$$= 102000$$

25.
$$h(x) = 5x^2 - 7x + 6$$
$$t(x) = 32x + 18$$

$$h(t(7)) = 32x + 18$$
$$= 32(7) + 18$$
$$= 242$$
$$h(242) = 5x^2 - 7x + 6$$
$$= 5(242)^2 - 7(242) + 6$$
$$= 291132$$

26.
$$\frac{15999(90\%)}{48} = \$299.98$$

35.
$$V_{\text{Theoretical}} = 2 \times 4 \times 72$$
$$= 576$$
$$V_{\text{Actual}} = 1.5 \times 3.5 \times 72$$
$$= 378$$

576 Enter
378 %CHG
Ans: -34.4

36.
$$2\pi \text{ radians} = 360^\circ$$

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37.

$$P = 455.2 + 455.2 + \frac{7}{8}C$$
$$P = 455.2 + 455.2 + \frac{7}{8}(2\pi r)$$
$$P = 455.2 + 455.2 + \frac{7}{8}(2)(\pi)(455.2)$$
$$P = 3410$$

38.

$$A = \pi r_1 r_2$$
$$A = \pi \left(\frac{AB}{2} \right) \left(\frac{CD}{2} \right)$$
$$\frac{AB}{2} = \frac{A}{\pi \left(\frac{CD}{2} \right)}$$
$$AB = \frac{2A}{\pi \left(\frac{CD}{2} \right)}$$
$$AB = \frac{2(18830)}{\pi \left(\frac{222}{2} \right)}$$
$$AB = 108$$

47.

$$5.8(943)^{7632} = 5.8 \log(943)^{7632}$$
$$= 5.8 [7632 \log(943)]$$
$$= 5.8 [22701.473239...]$$

Write in answer blank x 10^{22701}
Subtract 2270 from display
Hit 10^x key
When you multiply $(2.97)(5.8)$, it is 17.2
Move decimal to left 1 place and increase the exponent by 1,
so that it reads 1.72×10^{22702}

48. Distance Formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$
$$= \sqrt{(343 - 122)^2 + (98 - 9)^2}$$
$$= 246$$

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49.

$$A = \frac{bh}{2}$$
$$= \frac{(\sqrt{.308^2 - .159^2})(.159)}{2}$$
$$= .0210$$

50.

Put calculator in radian mode

$$\cos \theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$
$$\frac{\cos 1.26}{1} = \frac{x}{5662}$$
$$x = (\cos 1.26)(5662)$$
$$x = 1730$$

Put calculator back into degree mode

59.

$$4(2x+1) = 3[(2x+3) + (2x+5)] - 8$$
$$8x+4 = 3(4x+8) - 8$$
$$8x+4 = 12x+24 - 8$$
$$8x+4 = 12x+16$$
$$-4x = 12$$
$$x = -3$$
$$\text{Largest} = 2x+5$$
$$= 2(-3)+5$$
$$= -6+5$$
$$= -1$$

60.

$$120x = 98(25 - x)$$
$$120x = 2450 - 98x$$
$$218x = 2450$$
$$x = 11.2$$

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61. Put calculator in radian mode

$$A = \frac{nb^2}{4 \tan\left(\frac{\pi}{n}\right)}$$

$$nb^2 = A \left[\tan\left(\frac{\pi}{n}\right) \right]$$

$$b = \sqrt{\frac{A \left[\tan\left(\frac{\pi}{n}\right) \right]}{n}}$$

$$b = \sqrt{\frac{576.22 \left[\tan\left(\frac{\pi}{8}\right) \right]}{8}}$$

$$b = 10.9$$

or

$$A = 2s^2(1 + \sqrt{2})$$

$$s = \sqrt{\frac{A}{2(1 + \sqrt{2})}}$$

$$s = \sqrt{\frac{576.22}{2(1 + \sqrt{2})}}$$

$$s = 10.9$$

62.

71. $V = \pi r^2 h$

$$h = \frac{V}{\pi r^2}$$

$$h = \frac{555\pi}{\pi(18)^2}$$

$$h = \frac{555}{(18)^2}$$

$$h = 1.71$$

72. $P(\text{sum of 5 and } > 5) = \left(\frac{4}{36}\right)\left(\frac{26}{36}\right)$
 $= .0802$

73. Law of Sines

$$\frac{412}{\sin x} = \frac{245}{\sin 35}$$

$$\sin x(245) = \sin 35(412)$$

$$\sin x = \frac{\sin 35(412)}{(245)}$$

$$x = \sin^{-1} \frac{\sin 35(412)}{(245)}$$

$$x = 74.7$$

$$\theta = 180 - 74.7$$

$$= 105$$

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74.

$$SA = s^2 + \frac{4bh}{2}$$

$$SA - s^2 = 2bh$$

$$\frac{SA - s^2}{2b} = h$$

$$h = \frac{SA - s^2}{2b}$$

$$h = \frac{344900 - 311^2}{2(311)}$$

$$h = 399$$